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Action's place in the venture creation process

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ABSTRACT

This study examined the effect that venture creation action has on the outcomes of nascent entrepreneurship. A conceptual model was developed which proposes action as a fundamental mechanism in venture creation. Thus, action should rightly be considered as a means which transmits the effects of venture resource endowments on to venture creation outcomes. This conceptual model was empirically supported in a random sample of nascent ventures. Ventures with higher levels of human or social capital were found to be more active in venture creation. In turn, more active venture attempts were more likely to achieve improved venture creation outcomes. Further, human and social capital, on their own, exhibit little direct influence on the venture outcomes achieved. These findings confirm action's central place in the venture creation process.

Keywords: Nascent entrepreneurship; entrepreneurial action; human and social capital; venture creation process; mediation model.

INTRODUCTION

This study highlights the important intermediate role that action plays in venture creation by examining its antecedents and consequences. In doing so it takes a behavioural perspective, arguing that it is not only what a nascent venture is but what it does (Katz & Gartner, 1988; Shane & Delmar, 2004; Reynolds, 2007b) that is important. Prior research has focused on the nature of venture creation attempts and attributed variations in outcomes directly to the impact of resource endowments (Rotefoss & Kolvereid, 2005; Delmar & Shane, 2006; Newbert & Tornikoski, 2012). While there is little doubt that venture resource attributes such as human capital and access to social capital (Davidsson & Honig, 2003) will have an influence, models where these various factors are expected to have independent impacts on outcomes are theoretically unsatisfactory, as these factors can have no influence without action. Resource attributes remain inanimate without the actions of the nascent venture. Thus, the contribution this chapter makes is to focus on those actions taken prior to emergence which act as mediator between venture resources and venture outcomes.

The theoretical model which posits venture creation action as the medium through which venture emergence is transmitted remains largely untested in the extant literature. Some research in nascent entrepreneurship conceptualises accumulated action as an end in itself (Samuelsson & Davidsson, 2009), or a proxy for specific outcomes such as venture persistence. However, to understand venture creation more fully it is insufficient to merely describe the actions taken, or how long a venture is worked on. Ultimately, action in the venture creation process is directed

towards the conclusion of the venture creation attempt via engagement in the market. Though not all venture attempts are alike, it was expected there would be variation in the amount of action taken and, in turn, the amount of action required to conclude the process. Potentially it is this variation in the intervening process which attenuates the effect of resource endowments, and has resulted in mixed findings in previous research (Davidsson & Gordon, 2011). Thus, a more complete conceptual model for venture creation must take venture creation action into account as mediator in order to better explain outcomes. Further, this study makes a contribution by empirically testing this mediation model for venture creation action.

The chapter proceeds firstly by exploring action as being the mediating mechanism in a model of nascent venture creation; secondly, human and social capital are introduced as facilitators of venture creation action; and thirdly, a method is detailed that tests the conceptual model and the series of associated hypotheses. Finally, a number of theoretical and practical implications are drawn from the findings of this study.

THE CASE FOR VENTURE CREATION ACTION

Entrepreneurship is a heterogeneous phenomenon, varying from high impact ventures to more mundane efforts (Davidsson & Gordon, 2011). As a result, consistent empirical findings on the general mechanisms of nascent entrepreneurship which hold across the population of new ventures have thus far proven elusive (Gartner & Shaver, 2011). Many scholars have studied entrepreneurs and their environments; some have looked at venture characteristics. Comparatively few have looked at dimensions of the venture creation process such as action.

In order to address this gap, prior research has looked at smaller components of entrepreneurial processes and at sub-groups of entrepreneurial actors. For example, one stream of entrepreneurship research has focussed on higher potential efforts (Birch & Medoff, 1994; Henrekson & Johansson, 2009), perhaps as these have a more significant role in the economy at large. This approach, reducing heterogeneity by design, may facilitate coherent yet specific findings for the particular case addressed but does not advance knowledge of those excluded from examination. This excluded group of ventures, such as low-impact and lifestyle businesses, should be just as important theoretically.

Consider the analogy of 'walking'; at its most basic this activity is one that is well within the capability of the majority of individuals, at the other extreme walking can be considered an elite

sport. At this elite level of performance certain characteristics of walking may be vastly different to the form of 'walking' that is engaged in the everyday conduct of life. At their core these two things are still 'walking' and they share general properties which identify them as such. Entrepreneurship and its constituent processes by analogy will share characteristics between those who conduct it at a basic level compared with those who do so at far higher performance levels. Stepping back and considering entrepreneurship more generally, it is nothing if not an active process. It is this general characteristic of action on which this chapter focuses.

Action alone can transform an entrepreneur's idea for a business into an actual business. As such, action may be considered to be the mechanism of venture creation. Mediation models are ones that explicitly focus on the mechanisms that drive phenomena. Mediation can relate the true nature of relationships between antecedents and outcomes. Therefore, a mediation model for the venture creation process is potentially one where such general properties may hold across the heterogeneous population of entrepreneurs and their venture creation attempts. Surprisingly, extant research in nascent entrepreneurship has avoided mediation conceptualisations in their theorising, or avoided explicit tests of the implicit mediation models they outline (Honig & Karlsson, 2004).

This oversight has recently started to be redressed (Patel & Fiet, 2009; Edelman & Yli-Renko, 2010). Mediation models are designed to explicate "processes that intervene between input and output" (Baron & Kenny, 1986: 1176). The conceptual model suggested here is straight forward. In this chapter, important inputs to venture creation are conceptualised as being the human and social capital available. The output of the venture creation process is the conclusion of a venture creation effort as a newly constructed business - for example, one that actively engages and exchanges goods or services in the market. Finally, the process that intervenes between input and output is conceptualised to be the actions taken toward venture creation.

Some start-up attempts undertaken by venture founders will be successful even though they have little scope to draw on beneficial resources such as human and social capital. Conversely some attempts by founders will be unsuccessful even with extensive endowment of these resources. Comparing the actions taken in venture creation in each of these cases we might come to understand why attempts achieve the outcomes they do. As regards to outcomes, ventures will vary in the stage of development that they each individually might achieve. Further, it is naive to

consider a terminated venture creation attempt purely a failure, for example an early quit from the business performing badly is in some sense a success as it minimizes losses (Sarasvathy, 2001) and provides learning for future venturing (McGrath, 1999).

One thing that has been shown to be a determinant of venture creation, or at least resolution of the start-up process, is effort invested. Thus, the more the start-up is acted on the more likely it is that a definite outcome is achieved (Carter, Gartner, & Reynolds, 1996; Liao, Welsch, & Tan, 2005; Lichtenstein, Carter, Dooley, & Gartner, 2007; Edelman & Yli-Renko, 2010). The alternate is that little action may result in the venture never really getting started, or on the other hand, never really given up on completely. Ventures are not something that pop into existence fully formed, they emerge, and in doing so exhibit differences in the action required to construct them.

The clear advantage of a mediation model for venture creation action is the fact that it coincides with a causal mechanism that is obvious, and the general notion that entrepreneurship is 'active'. More active venture creation attempts are more likely to achieve better outcomes. Further, ventures with higher human and social capital are likely to be more active in venture creation, as they have greater facility to be so and often are. Accordingly, the remainder of this chapter explores this causal mechanism. The relationships between human and social capital and action as part of the venture creation process are embodied in the following conceptual model (Figure 1). The chapter now turns to a fuller discussion of the linkages within this model.

Insert Figure 1 about here

Action in the venture creation process drives venture creation outcomes

It stands to reason that the more active a venture creation process is, the more likely it will be more successful. At the very least, the more active a venture creation process is, the more likely that attempt will be concluded. This conclusion may be either a successful venture start, or a more informed venture exit. Of course the opposite is most certainly true: those venture creation attempts that do nothing, achieve nothing. Assuming the actions taken toward venture creation are neither naive or destructive, and given that loses hold more valence than gains (Kahneman &

Tversky, 1979), the marginal effect of increased action will likely tend toward venture creation rather than exit.

As a venture creation process plays out more action is taken (Reynolds & Miller, 1992) and the more action taken, the more the venture creation may be considered to be progressed. An extreme view of venture creation might be that there is no such thing as creating half a new venture. Prior to establishment a venture is considered nascent. Ventures that are attempted yet never established remain forever nascent, regardless of initial feasibility or subsequent progress. Thus progress during nascence as an ultimate outcome of venture creation is rendered moot. In order to assess whether a venture has been created, one must define what constitutes that status. This is difficult to do objectively as emerging ventures come in all shapes and sizes, some hire staff some do not, some enter in to government registers while others go unrecorded (Schoonhoven, Burton, & Reynolds, 2009). The empirical study of nascent entrepreneurship has grappled with this problem. Regardless of this difficulty researchers may adopt their own definition and consistently apply it.

A common definition uses market activity: once a venture makes consistent and beneficial exchange of their goods or services they may be considered to be 'created' (Katz & Gartner, 1988; Liao et al., 2005; Brush, Edelman, & Manolova, 2008a). In this regard, there is an 'end' to the process of venture creation. Failing the selection of an end point some have posited the accumulation of venture creation activities as 'progress' toward venture creation (Davidsson & Honig, 2003; Patel & Fiet, 2009; Samuelsson & Davidsson, 2009). While this indeed may be an accurate description of what occurs, it remains an approximation of an ultimate outcome, and logically an unsophisticated one. As a result this study argues that a more parsimonious conceptualisation of venture creation action is as a medium, rather than an interim measure of progress or an end in itself.

Prior research has attributed venture creation action to antecedents such as human and social capital (Alsos & Kolvereid, 1998; Davidsson & Honig, 2003; Liao & Welsch, 2008; Samuelsson & Davidsson, 2009). Other research has examined the effect actions have on the outcomes of nascent ventures (Carter et al., 1996; Parker & Belghitar, 2006; Brush, Manolova, & Edelman, 2008b). In this study these two approaches are combined, joining the dots to link antecedent resources such as human and social capital *through action* to venture outcomes. Venture creation

action may be seen as something that is engaged in on the way to venture creation, and from that engagement outcomes are created. In other words, action is the means toward that end. Action conducts an entrepreneurs goal of venture creation through the entrepreneurship process.

The venture creation process is bound by when actions occur

Processes are phenomena which play out over time. Hence the effective study of them requires a definition of the beginning and end for the process being studied. Else, it is impossible to assess what falls within the process and what does not. However, it is difficult to pinpoint when the venture creation process begins. Does venture creation start when the entrepreneur first thinks of their idea for a venture, or when they first begin to act upon this (Dimov, 2011)? Similarly, when is a new venture truly 'created' (Schoonhoven et al., 2009)? A theoretical and empirical resolution to this debate is something that the wider field of entrepreneurship is likely to continue to grapple with. A universal definition of venture creation's true beginning and end is far beyond the scope of what is possible to achieve in this chapter. Further it is likely that the overall characteristics of what falls within the venture creation process hold greater import than the specific definition of its end points. Thus, if the definition of the process is plausible, it will yield useful analyses. By the same logic, if this definition is consistently applied throughout the research, it will also yield useful analyses. This is the approach that was adopted: A plausible definition was chosen and consistently applied. However, this study goes further by implementing two alternate, yet equally plausible, definitions for the beginning, and for the end of the venture creation process.

These different 'time-slices' are consistently, and comprehensively applied throughout, and as a result form a robustness test for actions effect in the venture creation phenomenon. Delineating different 'time-slices' is not meant to define different types of process or different validity for the actions which make up the process, nor should vastly different effects be evident. This aligns with the stated aim of this chapter, to identify action's general place in the venture creation process. The role of action within any of these time slices should be congruent, and bring the venture creation attempt toward completion. If the theorised relationships between venture creation action, antecedent human and social capital resources, and venture outcomes hold then claims of more generalized knowledge may be made.

The start points of the 'process time-slices' were selected to accord with two possible solutions for identifying when a venture creation process commences. The first solution is that venture creation commences when the first action is taken toward that effort. In this case action particular to that venture may occur prior to acknowledgement of the ultimate venture idea (Weick, 1979; Bhave, 1994). The second solution is that that venture creation commences when the particular venture creation idea is acknowledged. This study remains agnostic to whether one of these is more correct than the other. As for the end point: the time of first sales was chosen as one definition, while the time at which cash positive status was attained was chosen as the other. Market based definitions of venture creation, such as these, acknowledge that exchange (Shane, 2003) is a fundamental property of organization emergence (Katz & Gartner, 1988). Figure 2 clarifies how these two start and two end points relate to the venture creation process definitions adopted.

Insert Figure 2 about here

The venture creation process consists of the actions taken

Within the venture creation process certain individual actions have been found to facilitate improved outcomes. For example, business planning has a positive effect on venture persistence (Delmar & Shane, 2003; Honig & Karlsson, 2004; Liao & Gartner, 2006). There is a cumulative effect of venture creation action. Making progress in the process, through the increased action decreases the likelihood of termination (Shane & Delmar, 2004). At the very least it seems that the more active a venture is the more it will persist in the venture creation effort (Brush et al., 2008b). Some of the earliest research on nascent entrepreneurship found that successful start-up attempts were just as active as those that were ultimately abandoned (Carter et al., 1996). Moreover, it is less than ideal to focus on the presence or absence of a few venture creation actions, especially if proposed to be of influence across a diverse population of nascent ventures. Rather, the holistic weight of venture creation action is likely to be a far stronger predictor of venture outcomes (Carter et al., 1996; Lichtenstein et al., 2007). Particular individual venture creation activities themselves promote more action overall, for example business planning or establishing a legal entity (Delmar & Shane, 2004). Venture creation activities are "highly interdependent because the presence or absence of one activity can impact the potential or the

effectiveness of another" (Lichtenstein et al., 2007: 239). Therefore, it is the case that the more active a venture creation effort is the more active it will be (Davidsson & Honig, 2003). In all, this suggests that venture creation action drives resolution of the venture creation process (Parker & Belghitar, 2006).

More active ventures should also be more successful — beyond mere persistence or resolution of the venture attempt. While for those who have sunk effort into their venture persistence may be born out of a reluctance to let go of even an underperforming venture (Staw, 1976). It should be true that the result of being more active is the greater likelihood of becoming fully operational in the market. There is evidence for this, as a range of individual venture creation activities have been found to predict reaching first sales (Newbert, 2005). Which particular venture creation activities predicted first sales depended on the technological sophistication to which the venture laid claim (Newbert, 2005). Further, as market dynamism increases so too does process complexity, consequently a lesser number of activities successfully predict firm foundation. Newbert's (2005) analysis considers the separate influence of discrete actions; it is an excellent example of why the cumulative effect of these actions should be considered. This extension suggests that if more of these activities are engaged in 'together' the likelihood of venture emergence is increased. In other words, it is the overall action that is important. This observation may be considered trivial in nature, or a truism that requires no empirical confirmation. It may be the case that general observations such as this are the ones more likely to hold across heterogeneous random samples of the myriad population of nascent ventures (Gartner & Shaver, 2011).

It should be the case that action itself be a strong driver of venture outcomes, over and above many other predictors. Research has highlighted this notion. For example, (Ruef, 2005) found "the initial resource base of entrepreneurs has no significant effect on the operational start-up or social organisation of a new venture, but subsequent resource mobilization events accelerate these start-up activities considerably". Effectively, action corresponds to the investment of resources such as human and social capital. In all, the actions a nascent organisation takes, such as making financial projections or marketing, are more important than its antecedent resource characteristics, such as human capital, in explaining organizational emergence (Tornikoski & Newbert, 2007). As a result of the preceding argument, the following hypothesis is proposed:

Hypothesis 1: More active venture creation attempts have improved venture creation outcomes.

Human and social capital facilitate venture creation action

Both human and social capital are considered essential resources upon which a venture may draw on during its formation (Davidsson & Honig, 2003). In a nutshell these refer to 'what' the venture team knows (human capital) and 'who' the venture team knows (social capital). The more a venture team knows the more successful they should be in venture creation, as they would possess an improved understanding of their task and their environment and an improved ability to accumulate knowledge should this be required. The more a venture has social connections, the more able they are to draw on support if required, to access idiosyncratic information or to leverage other resources. The efficacy of both of these 'what' and 'who' functions have some empirical support. For example, elements of human and social capital lead to both survival and profitability of new ventures (Bosma, van Praag, Thurik, & de Wit, 2004). The relationships between capital endowments and the fate of entrepreneurial ventures are not necessarily direct (Gimeno, Folta, Cooper, & Woo, 1997; Dimov, 2010).

While human capital might explain venture performance, it also drives motivations for switching to alternate endeavors outside of the venture, and thus venture termination (Gimeno et al., 1997). Even if human capital is beneficial, it is only indirectly related to venture creation (Dimov, 2010). Thus, it seems there is good reason to suspect more complex relationships between a human and social capital, and venture creation than a simple direct effect. Further, it is also true that while human and social capital may change over time, their influence on venture creation will remain static should they not be invested through some action. This is true no matter what antecedents are deemed relevant for venture creation. Clearly venture creation is an active endeavor. Therefore, human and social capital or any other resources can have no effect on venture creation if action is not taken. Action is the primary medium by which venture creation is achieved, therefore conceptual models must account for action in this manner. The remainder of this discussion goes on to further define human and social capital and explore their roles as antecedents to action, rather than direct determinants of venture creation.

Human capital and venture creation action

Human capital is perhaps one of the most enduring concepts in economic-sociology (Becker, 1993) and one that has found much application in the fields of management and organization. So

too, in entrepreneurship research, human capital is a commonly applied concept (Unger, Rauch, Frese, & Rosenbusch, 2011). Human capital refers to the knowledge and skills an individual possesses as developed through education and experience (Becker, 1993). Undoubtedly, some entrepreneurs perform better than others and this may be due to venture creation skills they possess as enhanced by education or experience. Those with access to higher levels of human capital are likely to be more productive, and thus are able to derive higher quality outcomes for their effort.

Human capital differences in the form of prior knowledge will lead to perceptions in uncertainty and therefore affect entrepreneurial action (McMullen & Shepherd, 2006). Further, human capital should provide a "superior ability in successfully exploiting opportunities" (Davidsson & Honig, 2003: 305). This 'superior ability' and 'perception of uncertainty' therefore enable a capacity to affect venture creation action. Nascent entrepreneurs who possess higher human capital in the form of prior start-up experience exhibit increased confidence in their current opportunity, their actions and the unfolding promise of their venture idea (Dimov, 2010). There is good reason to believe that the actions taken by more experienced or educated entrepreneurs during venture creation would be different to that of others (Westhead, Ucbasaran, & Wright, 2005). For instance, human capital effects such as experiential learning might facilitate the short-cutting of some processes; complete re-learning of what to do during start-up should not be required each time a firm is created. This allows allocation of effort to be more efficiently made elsewhere during venture creation and provides a beneficial increase in the capacity for action. This effect has been confirmed empirically, where those who had prior experience or business education were more active during venture creation (Davidsson & Honig, 2003), after deciding to continue its pursuit. Taking specific prior experience of entrepreneurship as a key indicator of human capital, experienced entrepreneurs have more active venture creation processes than novices. Serial founders appear to be under greater time pressure and complete more venture creation actions than novices do (Alsos & Kolvereid, 1998). At a minimum, higher human capital is related to venture survival (Bates, 1990; Cooper, Gimeno-Gascon, & Woo, 1994), for a given level of performance it is even considered a prerequisite (Brüderl, Preisendorfer, & Ziegler, 1992). A venture may persist without it, but it is more likely to persist if it possesses enhanced human capital. While a venture remains ongoing it may act, therefore ventures in possession of enhanced human capital will be more active.

Higher human capital promotes efficient allocation of effort and allows the venture to be more active. Ventures attempted by those who possess greater human capital may generate increased action. These effects are likely to be cumulative given that ventures accessing increased human capital are often more ambitious efforts. In turn, more ambitious, innovative or higher technology ventures are likely to require more action around planning (Liao & Welsch, 2008) and intellectual property protection (van Gelderen, Thurik, & Bosma, 2005). Those with prior experience are more likely to engage in other activities, like marketing and gathering input resources (Delmar & Shane, 2004). There is also evidence that highly experienced entrepreneurs are better equipped and more active in defining market opportunities relating to their venture idea given they possess an enhanced understanding of information (Ucbasaran, 2004) and more skilled in "the accumulation and integration of new knowledge" (Davidsson & Honig, 2003: 306). Further, human capital intensive ventures, such as those with innovative ideas or high technology will require more action overall in order to proceed (Liao & Welsch, 2008; Samuelsson & Davidsson, 2009). For example Samuelsson and Davidsson (2009) found support for the role of education and experience based human capital in driving action within innovate ventures. Therefore, human capital provides the capacity and necessity for increased action in venture creation.

Hypothesis 2a: Ventures with access to higher levels of human capital are more active in venture creation.

Social capital and venture creation action

Distinct from human capital, social capital is an associated construct (Coleman, 1990; Sharma, 2010). Social capital relates to the support, knowledge, information and other resources available to the entrepreneur as mediated by social exchange (Nahapiet & Ghoshal, 1998). At its simplest, social capital may just involve the exchange of information right through to relationships which are far richer, exchanging effort for mutual benefit (Uzzi, 1996). This thesis takes a broad definition of social capital stating that it is the ability to work with and through others. Further, social capital is essentially constructed from the connections which relate one person to another and therefore cannot be reduced to the properties of individuals themselves, as can be the case with human capital. The distinction then is that human capital is formed only by intimate participants in the venture creation attempt; social capital reaches beyond this to the wider ecosystem to derive resources. The main idea behind for the role of social capital in venture

creation is that those who have the ability to draw on more social resources have a greater capacity for action, and will in turn tend to achieve better outcomes.

It is theorised that social capital drives entrepreneurial action. For instance, role models are deemed important, so too are teams and the encouragement of family members. Further, the empirical evidence confirms that this is the case. For nascent entrepreneurs the presence of strong social ties influences their perseverance in pursuit of their venture formation ambition (Davidsson & Honig, 2003). Those ventures that draw on the encouragement of role models or participate in a team start-up are found to be more active in their venture creation attempt (Davidsson & Honig, 2003).

Strong ties have been found to have a positive effect on firm survival (Brüderl & Preisendörfer, 1998). In this sense the support of family and friends as strong ties in the entrepreneur's social network verifies the findings of (Birley, 1985). The intensity of social capital has been found to facilitate venture creation through the accumulation of venture creation action (Patel & Fiet, 2009). In this case "social capital that can be leveraged to help an entrepreneur to found a firm may be efficient because network informants can interpret and apply what they know to a person's discovery to facilitate firm founding" (Patel & Fiet, 2009: 510).

Access to particular forms of social capital, namely instrumental social capital, has been found to promote venture creation action regardless of the innovativeness of the venture (Samuelsson & Davidsson, 2009). Instrumental social capital is differentiated as being less about general support and encouragement, and more about access to information and resources. A surprising finding from the same research was that positive reinforcement in the form of encouragement only promotes venture creation action for innovative ventures (Samuelsson & Davidsson, 2009).

In all, increased social capital should allow the venture to achieve more by being more active. Social capital may even necessitate this. For example, ventures that draw on increased social capital are likely to require more effort to be placed into coordinating these socially mediated resources. Governance of intra and inter venture relationships becomes important. These ventures are more likely to expend action toward the retention of a legal and perhaps financial advisor. Team ventures, for instance, will more likely be required to formally prepare ownership documentation.

Ventures with access to increased social capital may make an effort to access particular resources through these channels and, as such, are likely to be more active in resource gathering that benefits from social mediation. For example, increased social capital may make the collection of competitor as well as customer information or the seeking of external funding more likely. In addition, there is a cumulative effect if each of these individual actions is more likely in ventures with increased social capital; these ventures are more likely to be more active overall.

Hypothesis 2b: Ventures with access to higher levels of social capital are more active in venture creation.

Venture creation action mediates human and social capital effects on venture outcomes

The premise thus far is that action in the process of venture creation is what converts the resources available to the venture, such as human and social capital, into a successful outcome. The preceding elaboration proposed that ventures with access to more capital are more active, and further that more active ventures are more successful. The result of this theorising suggests that human and social capital, rather than having direct effects upon venture creation, will have an indirect effect mediated through action. This indirect effect is one that lacks sufficient examination in prior research.

Though prior research has not explicitly advanced the idea that action is a likely medium for capital effects on outcomes, indirect effects for capital have been identified in entrepreneurship research, and action seems an implicit characteristic of entrepreneurship. For example, general and specific human capital, such as venture founders' education and industry experience, has been shown to have strong direct and indirect effects on venture survival (Brüderl et al., 1992). The direct effect on venture survival is through the choice of higher quality strategies, while the indirect effect is via the selection of higher quality ventures on entry.

The concept that capital effects on outcomes need to be mediated in some way has been reported, where the "mechanism through which entrepreneurial experience can affect venture emergence may be not only direct and linear, but also indirect" (Dimov, 2010: 1131). Dimov (2010) posits that opportunity confidence is the mechanism through which human capital affects venture emergence. It could be argued that opportunity confidence and venture creation action are related, as the former is something that should increase the likelihood of the latter. The mediation relationships may be more complex than suggested here. As another step in gathering evidence

on the general mechanisms of venture creation and drawing on the preceding elaboration venture creation action should be an important mechanism. Thus:

Hypothesis 3: The effect of human (H3a) and social capital (H3b) on venture creation outcomes is mediated by venture creation action.

METHODS

Hypotheses were tested using data collected as part of the Comprehensive Australian Study of Entrepreneurial Emergence (CAUSEE) (Davidsson & Steffens, 2011; Davidsson, Steffens, & Gordon, 2011). CAUSEE is a panel-study of venture creation attempts as they unfold. Participants were drawn from a random sample of 493 nascent ventures. That is, at recruitment the nascent ventures were ongoing but not yet fully active in the market. The data used in this research were from those who had participated in two annual telephone interviews. Responses to questions about the completion and timing of 30 possible venture creation activities were used to measure the amount of venture creation action taken. The timing information was used to construct a coherent time-slice of the venture creation process, from first action until first sales, and to ensure that this action mediator variable occurred prior to the venture outcome. The first interview captured information on the characteristics of the venture and the human and social capital resources available to it. The second interview, held one year later, assessed further progress and the ultimate venture creation outcomes. The remainder of this section provides more detail on the variables measured and the analytical approach adopted.

Dependent variables: Venture creation attempt outcome

A trichotomous dependent variable (DV) was used to measure the outcome for the venture creation attempt, as is the case with other research on nascent venture creation (Davidsson & Gordon, 2011). The alternatives of the DV indicate whether: a) the attempt had been terminated and was no longer actively being pursued, b) the attempt had reached a certain threshold of performance that could be considered operational (either by having maintained consistent sales in the market or becoming cash positive for six of the previous twelve months), or c) that the attempt had not yet resolved to either of these states, and thus remains ongoing. It is important to note that there were ventures that had made sales, but the sales were not yet consistent enough for the venture to be considered 'operational'. The outcome variable was measured during the second year of data collection and therefore is temporally separated from both control (CV) and independent variables (IV) which were measured in the first year, or prior to sales being made.

The multinomial nature of the separate outcome DV makes it possible to robustly test the differential drivers of venture creation outcomes. Further, by decoupling positive venture outcomes from more neutral indicators this operationalisation has improved resolution over prior research (Delmar & Shane, 2003; Liao & Gartner, 2006; Brush et al., 2008b) which treated termination as a dichotomous outcome alternative to persistence (bundling together the still tyring and successful cases).

Independent variables: Human capital, social capital and venture creation action

As noted by Bird and Schjoedt (2009) in studying entrepreneurial behaviour it is important to focus on just that, by operationalising observable tasks or activities; rather than what outcomes entrepreneurial behaviour may facilitate (Davidsson, 2004). Importantly therefore the venture creation action measure was restricted to those over which the nascent venture had full discretion as to their completion or not. The venture creation action variable was then constructed from the responses to questions regarding the completion of 30 typical venture creation actions. That these actions are "precursor behaviors that entrepreneurs commonly undertake to establish a new business" (Carter et al., 1996: 155) demonstrates their face validity. Not all ventures will engage all thirty actions. Yet, a venture attempt could be (realistically) considered viable should it not engage any of these actions. This list includes actions like 'business idea generation', creating 'financial projections' (Cassar, 2009), and preparing a 'business plan' (Delmar & Shane, 2003; Honig & Karlsson, 2004); as well as more definitive actions such as 'hiring employees' (Edelman, Manolova, & Brush, 2008), 'investing money' (Eckhardt, Shane, & Delmar, 2006), and 'purchasing materials' (Reynolds, 2007a). A summary of these actions is found in Table 1. The resulting 'action' variable was formed by a simple the sum of all of the discrete actions (Tornikoski & Newbert, 2007; Brush et al., 2008b; Patel & Fiet, 2009) that had been completed from the time of the first action until the time of first sales (or other process time-slices for robustness analyses). Importantly, the specification of the action measure as having preceded the time at which market engagement occurred further reduces temporal ambiguity. This specification together with the temporal separation between the independent and dependent variables allows a stronger test of causation.

Insert Table 1 about here

It is important to note that the human and social capital variables are operationalised at the venture level. That is, aspects of human capital are summed across all members of the start-up team and social capital is assessed through the venture's socially mediated resources. Not assessing the venture's entire pool of resources, or using an individual level construct when it is not appropriate, has been a limitation of prior research and potentially lead to difficulty in detecting weaker effects (Davidsson & Gordon, 2011). Human capital was measured as a formative index (Dagum, Vittadini, & Lovaglio, 2007) of nine presence/absence indicators of general and specific human capital (see Table 2), capturing directly applicable skills and experience. While social capital was measured as a formative index of seven presence/absence indicators of socially mediated resources that may be drawn upon (see Table 2). In the absence of theory to elevate particular measurement components of the human and social capital constructs relative to others, a unit weighting was used in their computation, as recommended by prior research (Welbourne & Andrews, 1996; Florin, Lubatkin, & Schulze, 2003).

Insert Table 2 about here

Control variables: Venture type, aspiration, process and effort

In order to control for competing explanations of nascent venture creation outcomes, and venture creation process differences, it is necessary to include variables which may be influential on both. Including these covariates will allow the variance in venture outcome attributable to the action taken by the entrepreneur to be isolated from that attributable to other explanations. Previous research has highlighted many coincident causes for venture outcome and process variation, as a result I include covariates (listed below) in order to account for these effects:

- *Type of venture* (Liao & Welsch, 2008; Samuelsson & Davidsson, 2009) — 14 variables: *regional location* indicated whether the venture was located in any of the five largest cities within Australia (Sydney, Melbourne, Brisbane, Perth, and Adelaide) or otherwise; nine industry dummies indicate the business sector in which the venture operates (*Retail, Hospitality, Consumer services, Health and social services, Manufacturing,*

Construction, Agriculture, Communications, or Business services); *independent business* dummy indicates that the venture was independently owned and conceived rather than part of another business, a franchise, or purchased through a trade; *product* dummy indicates whether the venture business model is based around a product or a service; *high technology* dummy indicates the founders perception of whether the venture should be considered to be based on 'high technology' or not; and *venture novelty* is a 12 point scale which captures the level of innovation in the venture (Dahlqvist & Wiklund, 2012).

- *Variation in aspiration* (Cassar, 2007; Brush et al., 2008a) — three variables: *growth focus* captured the ventures aspiration for growth, whether this was for the business "to be as large as possible" or to have a "size we can manage ourselves or with a few key employees"; *brick and mortar* dummy variable captured whether the venture intended to make any sales 'online' or would be only ever be a physical entity; and *international sales aspiration* asked the respondent, in five years time what proportion of their sales would come from international sales.

- *Variation in the process* (Alsos & Kolvereid, 1998; Delmar & Shane, 2003; Liao et al., 2005; Newbert, 2005) — one variable: *perceived process* length captured the variation in the process each venture envisaged in terms of the number of actions they deemed relevant, at the time of first interview.

- *Time of entry into the sample* (Lichtenstein et al., 2007) — one variable: *years* in process captures the amount of time that the venture creation attempt had been in progress.

- *Effort applied to venture creation* (Carter et al., 1996; Edelman & Yli-Renko, 2010) — two variables: *full-time* start-up effort captured whether the venture's owners had committed to the start-up 'full-time', that is spending thirty-five hours or more every week working on the venture; and *concurrent businesses*' dummy captured variance in the effort available to be applied to this venture, or whether other tasks may draw focus and effort away from the venture attempt being assessed.

Analytical approach

Hierarchical multivariate multinomial regression was the main statistical technique used to test the preceding hypotheses that focused on venture creation outcome DVs. For the test of

independent human and social capital variables on the venture creation action mediator hierarchical multivariate linear regression was used. Finally, the mediation effects for the complete model were tested using coefficient corrected bootstrap resample analyses. These bootstrap analyses were conducted using logistic regression models to compare all three two-way outcome DV comparisons. Importantly, when testing mediation models that include a categorical DV, preceded by a linear mediator the regression coefficients must be corrected. This is because the linear and logistic specifications are based on different models (Winship & Mare, 1984; MacKinnon & Dwyer, 1993) between the mediator (linear) and dependant (logistic) analyses. Further, uncorrected coefficients underestimate the resulting effects.

These analyses were repeated for three alternate specifications of the 'venture creation process'. Effectively these further analyses amounted to a robustness test of the hypothesised relationships. This was achieved by establishing an alternate start point and an alternate end point for the venture creation process, and creating the corresponding action (and outcome) measures between these points (Figure 2). For the former (start- point) venture creation action was measured from when the idea for the business was first generated. For the latter (end- point) venture creation action was measured up until the time the venture had become cash positive, with sales income exceeding operational expenses. Further, for the cash positive case the venture was only considered operational if it had maintained this status for at least six of the past twelve months. Corresponding with the aim of generating knowledge on the general mechanism of venture creation through action, all hypothesised relationships detailed earlier were expected to hold across these robustness tests.

Baseline analyses employ the time-slice operationalization that the venture creation process begins with the first action taken, and ends when sales are made. The other three variations were used for the robustness test and are reported subsequently. Action variables where constructed from the two waves of data collection and used time-stamp information on the various start and end points to define the time period relevant to a particular 'process time-slice' which corresponds with a particular DV. The end points of the 'process time-slices' simply correspond to the performance threshold of the trichomous DV. For example, analyses in which becoming cash flow positive is the dependant, the independent 'venture creation action' variables are constructed using the time when first positive cash flow was achieved as the end point for the

'process time-slice'. Given there are two different start points, and two different end points operationalized for the 'process time-slices', there are four different mediating variables for action. These variables are not analyzed concurrently, however, but their separate effects are noted. However, it is critical to note that these different mediator variables are not meant to capture different constructs – but – are variations of a single theoretical construct *'venture creation action'* manifest in a single conceptual model.

RESULTS

Of the 493 nascent ventures recruited into the sample, one year later 217 (44%) had become operational, making consistent sales for at least six of the previous twelve months, while one quarter (N = 123, 25%) had terminated their start-up attempt, the remaining 153 ventures (31%) were still trying. Of those ventures active in the market, 121 (25%) had generated positive cash flow by the time of the second interview. However, despite making sales, nine ventures were terminated prior to becoming cash positive. Therefore, 132 ventures (27%) were abandoned prior achieving consistently positive cash flow, with the remaining 240 (49%) still trying to reach this level of performance. The number of actions initiated by the nascent ventures varied greatly over the sample. After one year some had taken no further concrete steps towards venture creation (N = 2), while others (N = 3) had completed almost all (over 90%) of the thirty possible gestation behaviours. Between these extremes of venture creation activity, half of the ventures attempts had performed 14 actions prior to making first sales.

Venture creation action effects on venture creation outcomes

The support for hypothesis 1 is clear. This hypothesis proposed that more active venture creation attempts more likely derive better venture creation outcomes, and results of regression analyses (Table 3 to 6) are positive ($\Delta\chi^2(2, N = 481) = 29.38, p < .001$; $\Delta\chi^2(2, N = 481) = 21.31, p < .001$; $\Delta\chi^2(2, N = 399) = 25.22, p < .001$; $\Delta\chi^2(2, N = 399) = 14.67, p = .001$)[2] and significant across all robustness variations of process time-slice. A differential effect is observed between action towards becoming operational and becoming cash positive. In the case of the former, action prior to the time of first sales (baseline, and robustness II) has a stronger effect on becoming

[2] Note: Robustness analysis results are reported in precedence: results for time-slices starting from the time of first action are reported before those starting from the time of business idea; and results are reported for becoming operational (time-slice ends at time of first sales) prior to results for becoming cash positive (time-slice ends at time of positive cash flow). The order is therefore: 1) from first action until first sales (baseline), 2) from first action until cash positive (robustness I), 3) from business idea until first sales (robustness II), 4) from business idea until cash positive (robustness III). This convention is carried throughout this chapter.

operational (b = 0.14, z = 5.19, p < .001; b = 0.16, z = 4.80, p < .001), than on remaining still trying (b = 0.10, z = 3.58, p < .001; b = 0.11, z = 3.26, p = .001), compared with termination. However, for action prior to the time of positive cash flow (robustness I & III), the effect is inverted. In this case a stronger effect is found for remaining still trying (b = 0.10, z = 4.45, p < .001; b = 0.10, z = 3.76, p < .001) than is evident for becoming cash positive (b = 0.08, z = 3.14, p = .002; b = 0.07, z = 2.14, p = .032), when both are compared against venture termination. This differential effect is illustrated in graphs of predicted venture outcomes, see Figure 3 and Figure 4. Examining the average marginal effect, the data suggests that for each incremental venture creation action taken a venture attempt is 2 per cent more likely to become operational than it is to remain still trying, and 2 per cent less likely to terminate. While this marginal effect may be small in isolation, in aggregate the effect on venture creation outcomes is substantial. Therefore there is adequate evidence to accept H1: more active venture creation attempts derive improved outcomes.

Insert Table 3 to Table 6 about here

Human and social capital effects on venture creation action

Hypothesis 2 stated that that increased human (H2a) and social capital (H2b) were associated with increased venture creation action. A series of hierarchical linear regression analyses (Table 7 and Table 8) provides support for accepting these sub-hypotheses. Human capital was found to significantly predict venture creation action over and above covariates (ΔR^2 = .01, ΔF(1, 459) = 6.69; ΔR^2 = .01, ΔF(1, 459) = 5.83; ΔR^2 = .01, ΔF(1, 376) = 7.05; ΔR^2 = .01, ΔF(1, 376) = 5.20). For ventures with access to increased human capital results show that they are more active (b = 0.40, t(459) = 2.59, p = .010; b = 0.40, t(459) = 2.42, p = .016; b = 0.43, t(376) = 2.66, p = .008; b = 0.40, t(376) = 2.28, p = .023), therefore H2a is supported. Similarly, social capital improves model prediction (ΔR^2 = .02, ΔF(1, 459) = 5.73; ΔR^2 = .02, ΔF(1, 459) = 4.81; ΔR^2 = .02, ΔF(1, 376) = 6.02; ΔR^2 = .02, ΔF(1, 376) = 6.49) and is positively associated with venture creation action (b = 0.48, t(459) = 2.39, p = .017; b = 0.47, t(459) = 2.19, p = .029; b = 0.50, t(376) = 2.45, p = .015; b = 0.56, t(376) = 2.55, p = .011), therefore H2b is supported.

In addition, an alternate model specification which analyses the venture creation action DV as a count rather than linear variable provides results which closely match those obtained here. In this

case, negative binomial regression analyses confirm that both human and social capital is positively associated with increased venture creation action. While this alternate specification more completely reflects the distributional properties of the action dependant, it is difficult (with currently available statistical modelling software) to incorporate this sophisticated model within the latter full mediation model which has a categorical DV.

Insert Table 7 and Table 8 about here

Human and social capital effects on venture creation outcomes

Together human and social capital were found to have a direct effect on becoming operational ($\Delta\chi^2(4, N = 481) = 12.72, p = .013$; $\Delta\chi^2(4, N = 481) = 8.88, p = .064$; $\Delta\chi^2(4, N = 399) = 12.48, p = .014$; $\Delta\chi^2(4, N = 399) = 6.39, p = .172$). Human and social capital have differential effects on venture outcomes (Table 3 to 6). Increased human capital was associated with the venture remaining still trying to become operational rather than being terminated (b = 0.21, $z = 2.48$, $p = .013$). Continuation of the venture attempt may be considered a positive venture outcome; however, this is a weaker measure of success. Higher levels of social capital drives a venture attempt toward becoming operational rather than terminating (b = 0.23, $z = 2.18$, $p = .030$).This provides tangible evidence that social capital is beneficial to venture outcomes. These results provide partial support for a direct effect of venture resources on outcomes. However, this evidence is not ubiquitous, nor is it conclusive as robustness tests highlight (Table 11).

Action mediates human and social capital effects on venture creation

A final hypothesis predicted that venture creation action was the medium of transmission for human (H3a) and social capital (H3b) effects on venture creation. A number of reported analyses establish evidence in support of this hypothesis. Firstly, increased human and social capital is more likely associated with increased venture creation activity (Table 7 and Table 8). Secondly, increased venture creation action is more likely to be associated with improved venture creation outcomes (Table 3 to 6 – Model III). Thirdly, human and social capitals are limited drivers of venture creation outcomes (Table 3 to 6 – Model II). Fourthly, the effect of human and social capital on venture creation outcomes is reduced in the presence of venture creation action (Table 3 to 6 – Models II & III). Further support for mediation effects are provided in Table 9 and Table

10, which reports results for bias-corrected bootstrap analyses of direct and indirect effects of human and social capital on venture creation outcomes.

Insert Table 9 and Table 10 about here

The bootstrap analyses provide robust evidence in support of the hypothesised mediation effect. Both human (b = 0.06, z = 2.72, p = .006; b = 0.05, z = 2.93, p = .003; b = 0.04, z = 2.13, p = .033; b = 0.04, z = 2.31, p = .021) and social capital (b = 0.04, z = 2.25, p = .025; b = 0.05, z = 2.33, p = .020; b = 0.05, z = 2.10, p = .036; b = 0.04, z = 2.17, p = .030) have consistent indirect effects upon the venture remaining still tyring rather than terminating. By contrasting ventures that become operational as opposed to terminating, human (b = 0.08, z = 3.12, p = .002; b = 0.08, z = 3.00, p = .003; b = 0.05, z = 2.32, p = .020; b = 0.05, z = 1.99, p = .046) and social capital (b = 0.09, z = 3.61, p < .001; b = 0.08, z = 2.89, p = .004; b = 0.05, z = 2.49, p = .013; b = 0.06, z = 2.05, p = .041) again exhibit an indirect effect through action. It should also be noted that these indirect effects are present in the absence of direct or total effects for human or social capital. This serves to highlight the critical importance of mediation modelling and is consistent with action being the transmission mechanism through which venture creation is facilitated. Given the consistent indirect effects for human and social capital, H3a and H3b may be accepted. The effect of human and social capital upon venture creation outcomes is mediated by venture creation action.

Insert Table 11 & Figure 5about here

The results of statistical modelling are summarised in Table 11, along with the results of the robustness tests. It is clear from this table that while human and social capital may directly influence outcomes, in no case does this hold across the four model specifications of the robustness tests. In fact, for human capital two effects are in the opposite direction to those theorised. In all, the evidence for human and social capital having a direct effect on venture creation outcomes is poor. On the other hand, there is consistent evidence that action drives venture creation outcomes in addition to acting as a medium for transmitting human and social capital. Further illustration of this action mediation effect and (lack of) direct effects for human

and social capital can be found in Figure 5. This shows that while social capital may provide support for getting operational, human capital could only be considered to extend the process rather than bring it to conclusion. Finally, Table 12 presents descriptive statistics and zero-order correlations for all the variables analysed in the study.

Insert Table 12 about here

DISCUSSION

This study empirically examined an important dimension of the venture creation process by focusing on the actions that constitute it. This was conducted by first developing a conceptual model of venture creation that extended current knowledge to include action as the specific mediator between resources and outcomes. Panel data on nascent ventures was then used to test this model. Firstly, by isolating the antecedent venture attributes that drive action, and secondly by determining how these actions serve as the mechanism by which ventures are created.

If firm termination is removed from analyses, human capital has been found to play a small but significant role in general entrepreneurial success (Unger et al., 2011). A review of the extant literature on nascent entrepreneurship highlights that inconsistent, nonexistent, or even a limited number of negative results have been found for the direct effect of human capital on venture creation outcomes (Davidsson & Gordon, 2011). This study mirrors this confusion in findings on the direct effect of human capital on venture creation outcomes. Human capital was found to discriminate terminated ventures from those that remain yet to have made consistent sales in the market. Further, in comparing these operating ventures with those which remain still trying, human capital has a negative effect. Taken together these results suggest that human capital may be interpreted as something that extends venture creation processes, at least until first sales. These findings indicate that those with higher levels of human capital were more likely remain in the start-up phase, possibly as they attempt more ambitious ventures. For other outcomes human capital shows no discernible direct effect at all. Empirical studies almost universally show that general forms of human capital, such as formal education (Davidsson & Honig, 2003; Honig & Karlsson, 2004; Rotefoss & Kolvereid, 2005; Tornikoski & Newbert, 2007; Brush et al., 2008b;

Samuelsson & Davidsson, 2009; Dimov, 2010; Townsend, Busenitz, & Arthurs, 2010) or regular work experience (Honig & Karlsson, 2004; van Gelderen et al., 2005; Delmar & Shane, 2006; Parker & Belghitar, 2006; Brush et al., 2008a; van Gelderen, Thurik, & Patel, 2011), have little direct and beneficial effect on ultimate venture outcomes. General human capital should not be considered detrimental to venture creation. The reported lack of positive effect does not accord with accompanying negative outcomes. In all, general human capital just does not seem to display the advantages it is theorised to engender (Becker, 1993). Equally, the effects for more specific forms of human capital, such as management (Davidsson & Honig, 2003; Honig & Karlsson, 2004; Tornikoski & Newbert, 2007; Cassar & Friedman, 2009; Petrova, 2010; van Gelderen et al., 2011) and industry experience (Delmar & Shane, 2004; Shane & Delmar, 2004; Delmar & Shane, 2006; Tornikoski & Newbert, 2007; Samuelsson & Davidsson, 2009), do not generally follow theory. In US data from the Panel Study Entrepreneurial Dynamics as many negative effects are reported as positive ones for management experiences' relationship with venture outcomes (Davidsson & Gordon, 2011). The only consistently beneficial human capital driver of venture outcomes seems to be derived from prior entrepreneurial experience (Delmar & Shane, 2003; Delmar & Shane, 2004; Honig & Karlsson, 2004; Shane & Delmar, 2004; van Gelderen et al., 2005; Delmar & Shane, 2006). This is especially so should the prior experience be successful experience of venture creation (Rotefoss & Kolvereid, 2005). In sum, human capital drivers of venture creation may at worst be considered ambiguous (Parker & Belghitar, 2006), at best they do not disconfirm theory, rather they fail to provide sufficient evidence for direct effects.

Social capital on the other hand does not perform any better than human capital. Social capital only exhibits a direct effect upon becoming operational when compared with termination. No other direct effects were found for social capital upon venture creation outcomes. These mixed findings reflect the confusion of other studies where theorized relationships do not find empirical support in nascent ventures, and many inconsistencies exist. In Canadian data start-up teams were much more likely to achieve an operating business, than those who attempt venture creation alone (Menzies, Diochon, Gasse, & Elgie, 2006). However this positive effect for team ventures upon venture outcomes is not universal, a number of studies report no effect at all (Honig & Karlsson, 2004; van Gelderen et al., 2005; Tornikoski & Newbert, 2007). Results for social

support and encouragement (Davidsson & Honig, 2003; Parker & Belghitar, 2006), as well as government assistance (van Gelderen et al., 2005) are also inconclusive.

Turning to venture creation action, the results in this respect were very clear – action promotes beneficial outcomes. In all model specifications venture creation action was found to predict that less active ventures more likely would terminate their attempts, while more active ventures were more likely to persist in the process, as well as become operational. Given the invariance to model specification these results may be considered robust. No significant differences were found between ventures that had become operational when compared with those still trying. This final result is somewhat difficult to interpret since many attempts will rightly still be in progress. In effect, these maybe be considered censored cases. Another observation that may be made regarding the effect of action is that is it exhibits a stronger effect on reaching sales than it does becoming cash positive. This has important implications for the study of nascent entrepreneurship. A venture must be making sales in order to become cash positive. But, beyond making sales reaching a cash positive state becomes less about the venture creation actions taken and more about performance in the market, and even internal (to the venture) cost minimization. This is something that is not in the direct control of the entrepreneur, and certainly not captured by the venture creation actions they engage. Therefore this outcome variable may be too ambitious a hurdle with which to assess the earliest nascent stages of entrepreneurship. Drivers of venture creation may become confounded, as endogenous and exogenous influences on outcomes can occur. This observation, may serve to assist other researchers of nascent ventures, in interpretation of their non- results.

Clear results were evident for the indirect role that action plays in transmitting human and social capital effects. In the first instance, ventures with high levels of human and social capital were significantly more active than those in possession of less of these resource endowments. Again, this result holds across all model specifications, providing robust evidence of the effect. Coupled with the consistent effects observed for action upon outcomes, this provides strong support for the link from antecedent resources to venture creation action and in turn to venture outcomes. Further, bootstrap tests of mediation effects confirm these indirect effects hold, again for all model specifications. As a result strong support is found for mediation. In this respect, human and social capital consistently exhibit indirect effects through action in predicting terminated

ventures from those that remain still trying, or operational, or cash positive. In the absence of significant direct effects, this provides evidence beyond that for the action mediator to suggest that alternate omitted mediators are unlikely (Zhao, Lynch, & Chen, 2010).

In all, this evidence provides considerable support for the conceptual model as proposed. This has implications for nascent entrepreneurship theory and conduct. Firstly, human and social capital effects must not be considered in isolation as predictors of venture creation outcomes. To do so is theoretically insufficient. Secondly, venture creation action is best conceptualized as a mediating variable rather than a dependent variable. Despite the action conceptual model tested here confirming that action is a proxy for outcomes, it is not a substitute. Analyses which consider action alone as ultimate dependant are less satisfactory than those which assess the outcome of action. Thirdly, action drivers of positive outcomes coincide with those of persistence. The implication for human and social capital theories is clear. Inactive forms of these resources are incomplete predictors of venture outcome. Prior empirical research that considers human and social capital in this manner likely under estimates their true effect, if transferral mechanisms are not accounted for. In all, the findings of this research are somewhat different to (Carter et al., 1996) who found that terminated ventures were as active as those that became operational. The evidence here is that there is little doubt that increased action increased the chances of success. However, it is the status of abandoned venture 'attempt' that is at question. Does coming to the conclusion that the venture should be abandoned require more or less activity?

Finally, this research has recognised limitations. This study only had access to one follow-up year of the panel data, thus a large number of venture creation attempts remain still-trying. Therefore this study is unable to conclusively disentangle drivers of continuance or extended processes from success. As the underlying panel study employ in this research proceeds more venture creation attempts in the sample will resolve to either successful attempts or be abandoned. These are the ultimate fates of any venture creation attempt, save for those that unrelentingly remain in the limbo of being 'still trying'. The results, so far, strongly support the notion that action distinguishes those ventures that become operational from those that do not. In addition, the results for the 'still trying' cases also concur with the theorised relationships in terms of their direction, and in their effect.

CONCLUSION

Clearly, what entrepreneurs do is of interest to scholars and practitioners' alike. Thus the results of this research are important since they focus on nascent entrepreneurial behaviour and its outcomes. Overall, ventures with higher levels of human or social capital tended to be more active in venture creation. In turn, those ventures that were more active were more likely to conclude their venture creation attempt, with improved results. Further, venture creation action was found to mediate the effect that human and social capital have on venture outcomes.

So, while venture attributes, and resources at hand, themselves may be influential this is of little actionable assistance to practitioners. For example it is unhelpful to say to the prospective first time entrepreneur "you'll be more successful if you have lots of prior experience in firm start-ups". This research attempts to close this relevance gap by addressing what amount of action might be required for venture creation, and importantly in what circumstances. Overall, the advice is clear, that being active is vital to successful venture creation. More active venture attempts are more likely to be more successful. This suggests that ventures less endowed with access to human and social capital, may be able to compensate for this deficiency by actively engaging in their venture creation. Further, a contribution to the entrepreneurship theory is made, examining the role that the venture creation process plays in outcomes, and offers an extended conceptual model that synthesizes antecedent resources, and action as mechanism. Specifically the contribution made in this research is: That action is the medium by which new ventures are created, and thus mediates the effect that resource antecedents have on venture creation outcomes. This clarification of action's place in the venture creation process clarifies and extends our understanding of the entrepreneurship phenomenon.

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FIGURES

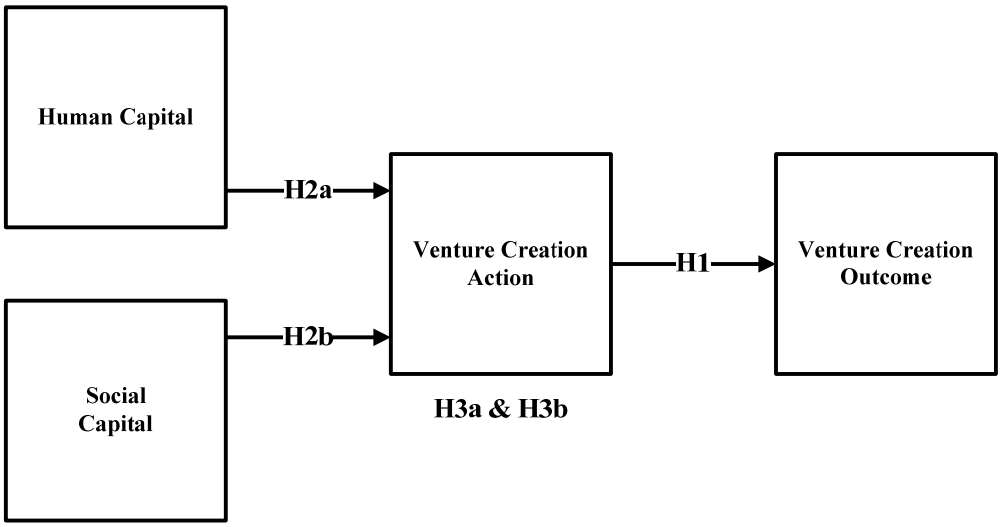


Figure 1 Mediation model for venture creation as a function of action

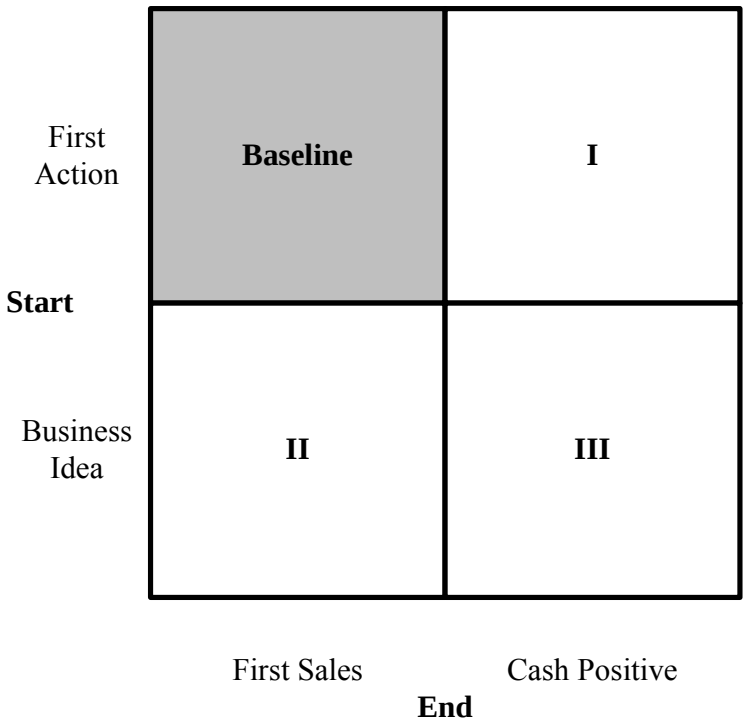


Figure 2 Alternate conceptualization of venture creation process time-slices (numbered segments correspond to robustness tests used in empirical analyses)

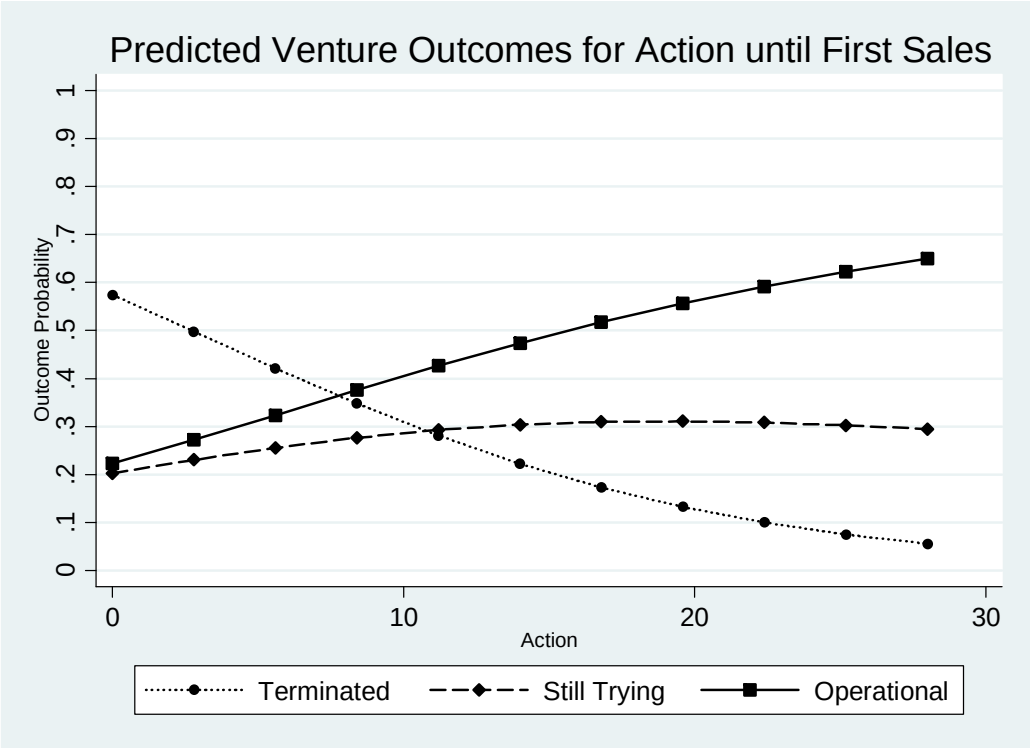


Figure 3 Modelled venture outcome contrasts for action until first sales (baseline)

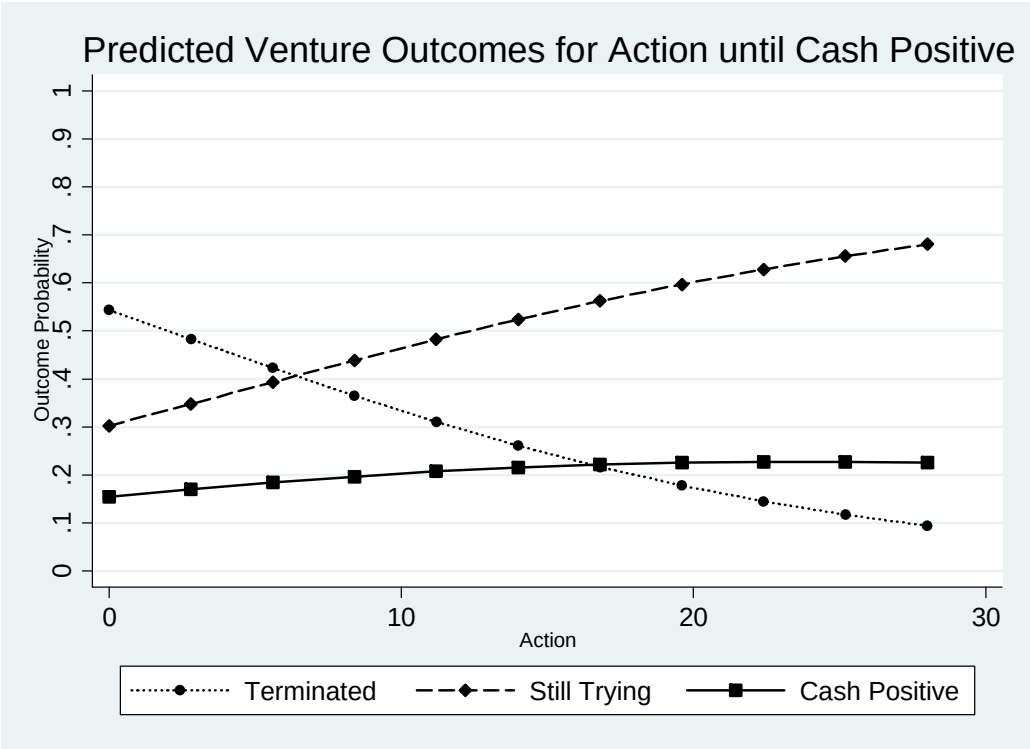
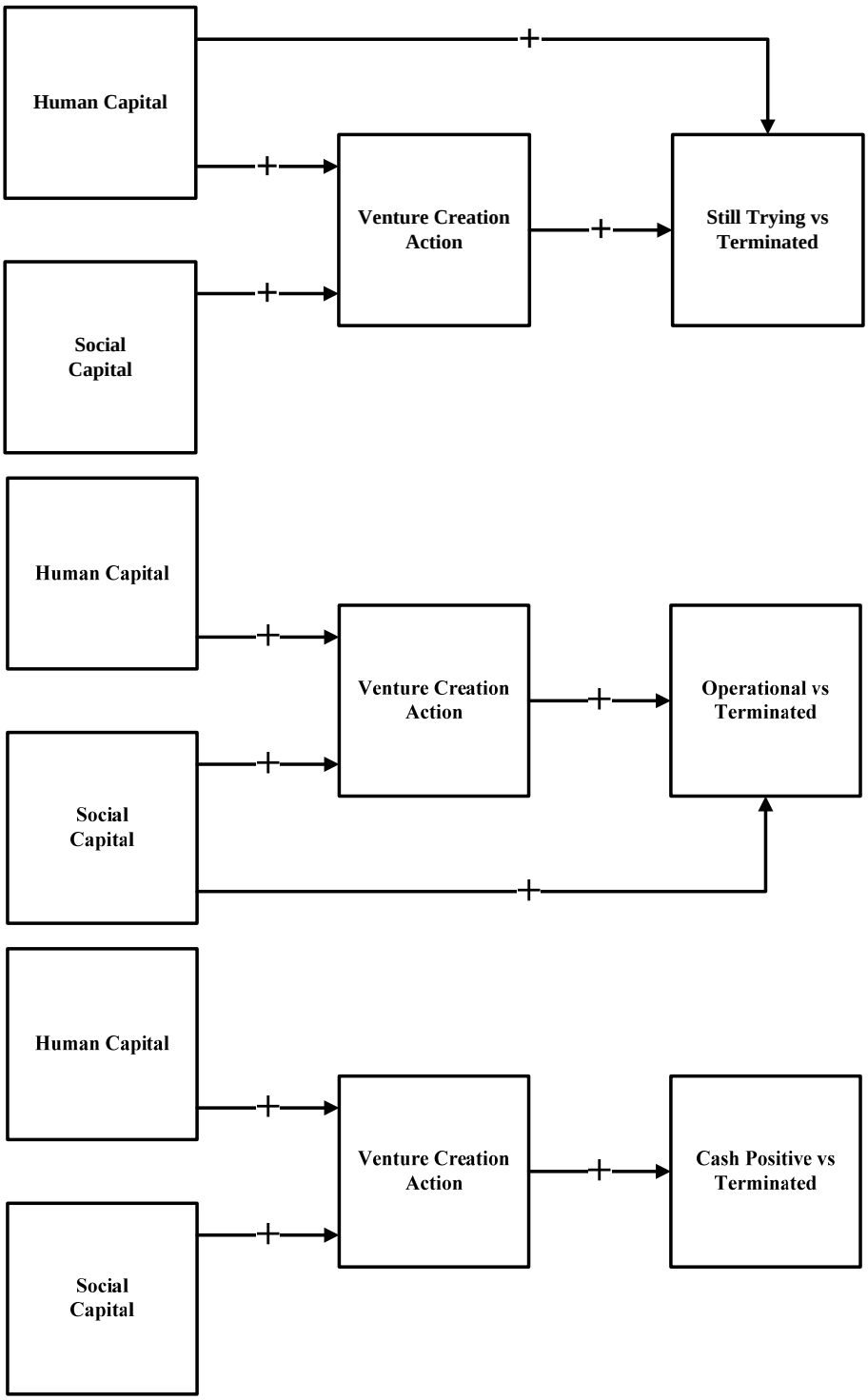


Figure 4 Modelled venture outcome contrasts for action until cash positive (robustness I)



Note: Based on multinomial logistic regression analyses as reported in Table 3 and Table 4. These results do not concur in all cases with the bivariate logistic regression contrasts reported in Table 9 and Table 10 (and summarised in Table 11). The direct effects of human and social capital illustrated here do not take action into account as a control.

Figure 5 Venture creation through action - significant effects for contrasting outcomes

TABLES

Table 1 Discrete venture creation action indicators combined to construct the action variable.

Venture creation actions		
Started thinking about business	Decided location for business	Registered for payroll tax
Began product development	Established legal form	Sought outside funding
Developed proprietary technology	Signed ownership agreement	Established supplier credit
Commenced customer discussions	Began marketing	Hired employee
Collected competitor information	Applied for IP protection	Opened bank account
Defined market opportunities	Leased major facilities	Invested own money
Produced financial projections	Purchased inventory	Retained an accountant
Determined regulations	Purchased liability insurance	Retained a lawyer
Began developing business plan	Registered business number	Made business contactable
Registered business name	Registered for GST	Created business website

Table 2 Human and social capital indicators combined to construct variables

Human capital	Social capital
Prior start-up ownership	Team venture
Industry experience	Joined trade or professional association
Prior start-up employment	Government assistance for venture
Venture specific business classes	Online business community
Administrative experience	Business networking group
Management experience in large corporation	Parental entrepreneur
Vocational diploma/trade qualification	External non-owner helpers
University degree qualification	
Higher degree qualification	

Table 3 Baseline multinomial logistic regression models of venture creation action, human and social capital on venture outcome.

Independent variables	Model I		Model II		Model III	
	Try	Sales	Try	Sales	Try	Sales
Constant	0.237	1.008	0.075**	0.625	0.036**	0.250
	(0.21)	(0.80)	(0.08)	(0.55)	(0.04)	(0.23)
Regional location	0.695	1.099	0.776	1.114	0.814	1.173
	(0.19)	(0.28)	(0.22)	(0.29)	(0.23)	(0.31)
Indep. business	2.873**	1.157	2.974**	1.154	3.278**	1.313
	(1.04)	(0.34)	(1.10)	(0.34)	(1.24)	(0.41)
Product based	0.753	0.553†	0.769	0.536†	0.777	0.570
	(0.26)	(0.18)	(0.27)	(0.18)	(0.28)	(0.20)
Venture novelty	1.008	0.920	0.996	0.912	1.013	0.933
	(0.06)	(0.05)	(0.06)	(0.05)	(0.06)	(0.05)
High technology	1.582	0.879	1.547	0.860	1.497	0.832
	(0.48)	(0.26)	(0.48)	(0.26)	(0.47)	(0.26)
Brick & mortar	1.078	1.778*	1.127	1.878*	1.101	1.800*
	(0.30)	(0.46)	(0.32)	(0.50)	(0.32)	(0.49)
Growth focus	1.582	0.924	1.708	0.957	1.573	0.852
	(0.51)	(0.30)	(0.56)	(0.31)	(0.53)	(0.29)
International asp.	1.005	0.999	1.004	0.998	1.004	0.998
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Years active	1.054†	1.027	1.048	1.022	1.056†	1.031
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Perceived process	1.019	0.998	1.017	0.985	0.991	0.942
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Concurrent venture	1.01	1.122	0.810	0.978	0.71	0.812
	(0.30)	(0.30)	(0.25)	(0.28)	(0.23)	(0.24)
Full-time effort	2.716**	4.769***	2.673**	4.466***	2.304*	3.546***
	(0.86)	(1.42)	(0.86)	(1.34)	(0.76)	(1.11)
Human capital			1.229*	1.056	1.198*	1.012
			(0.10)	(0.08)	(0.10)	(0.08)
Social capital			1.056	1.258*	1.039	1.237†
			(0.12)	(0.13)	(0.12)	(0.14)
Action					1.102***	1.147***
					(0.03)	(0.03)
Model X^2		121.299***		134.021***		163.397***
Log likelihood		-452.946		-446.585		-431.897
Cox & Snell R^2		0.223		0.243		0.288
Nagelkerke R^2		0.253		0.276		0.327
ModelΔ X^2				12.721*		29.377***

Note: Contrasts still trying [Try] and becoming operational (consistent sales) [Sales] outcomes against base outcome of terminating the venture creation attempt [Term]; $N = 481$; Industry dummy variables included in all regressions; Regression parameters expressed as odds ratios, standard error in brackets(); † $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; Two-tailed significance test used for hypotheses tests.

Table 4 Robustness test (I) for action, human and social capital on venture outcome

Independent variables	Model I		Model II		Model III	
	Try	Cash	Try	Cash	Try	Cash
Constant	0.374	0.427	0.189†	0.163†	0.098**	0.094*
	(0.29)	(0.39)	(0.16)	(0.16)	(0.09)	(0.10)
Regional location	0.951	1.058	0.994	1.097	1.020	1.115
	(0.23)	(0.31)	(0.25)	(0.33)	(0.26)	(0.34)
Indep. business	3.054***	1.197	3.083***	1.234	3.431***	1.365
	(0.92)	(0.40)	(0.94)	(0.42)	(1.08)	(0.48)
Product based	0.644	0.258***	0.629	0.250***	0.644	0.253***
	(0.20)	(0.11)	(0.20)	(0.10)	(0.21)	(0.10)
Venture novelty	0.994	0.877*	0.986	0.866*	1.009	0.879†
	(0.05)	(0.06)	(0.05)	(0.06)	(0.05)	(0.06)
High technology	1.539	0.895	1.499	0.851	1.377	0.792
	(0.43)	(0.32)	(0.42)	(0.30)	(0.40)	(0.29)
Brick & mortar	1.179	2.682**	1.242	2.847***	1.263	2.893***
	(0.30)	(0.84)	(0.32)	(0.90)	(0.33)	(0.93)
Growth focus	1.283	0.731	1.329	0.796	1.314	0.784
	(0.37)	(0.28)	(0.39)	(0.31)	(0.40)	(0.31)
International asp.	1.004	0.998	1.003	0.997	1.003	0.997
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Years active	1.056*	1.015	1.050†	1.007	1.049†	1.007
	(0.03)	(0.04)	(0.03)	(0.04)	(0.03)	(0.04)
Perceived process	1.020	0.999	1.011	0.979	0.976	0.951
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Concurrent ventures	0.886	1.177	0.756	0.922	0.624†	0.779
	(0.23)	(0.36)	(0.21)	(0.30)	(0.18)	(0.26)
Full-time effort	2.242**	6.167***	2.166**	5.887***	1.671†	4.669***
	(0.63)	(1.97)	(0.61)	(1.91)	(0.49)	(1.57)
Human capital			1.113	1.198†	1.082	1.170†
			(0.08)	(0.11)	(0.08)	(0.11)
Social capital			1.166	1.217	1.166	1.219
			(0.12)	(0.15)	(0.12)	(0.15)
Action					1.104***	1.087**
					(0.02)	(0.03)
Model X^2		141.760***		150.634***		171.940***
Log likelihood		-434.72		-430.28		-419.63
Cox & Snell R^2		0.26		0.27		0.30
Nagelkerke R^2		0.29		0.31		0.34
ModelΔ X^2				8.875†		21.306***

Note: Contrasts still trying [Try] and becoming operational (consistent cash positive) [Cash] outcomes against base outcome of terminating the venture creation attempt [Term]; $N = 481$; Industry dummy variables included in all regressions; Regression parameters expressed as odds ratios, standard error in brackets(); † $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; Two-tailed significance test used for hypotheses tests.

Table 5 Robustness test (II) for action, human and social capital on venture outcome

Independent variables	Model I		Model II		Model III	
	Try	Sales	Try	Sales	Try	Sales
Constant	0.246	0.641	0.088*	0.420	0.039**	0.163†
	(0.24)	(0.56)	(0.10)	(0.41)	(0.04)	(0.17)
Regional location	0.667	1.218	0.755	1.234	0.820	1.366
	(0.20)	(0.34)	(0.24)	(0.35)	(0.26)	(0.41)
Indep. business	2.860**	1.169	2.779*	1.149	2.939**	1.224
	(1.15)	(0.38)	(1.13)	(0.38)	(1.22)	(0.43)
Product based	0.646	0.636	0.664	0.613	0.688	0.684
	(0.24)	(0.23)	(0.25)	(0.22)	(0.27)	(0.26)
Venture novelty	1.015	0.957	1.002	0.946	1.017	0.961
	(0.07)	(0.06)	(0.07)	(0.06)	(0.07)	(0.06)
High technology	1.539	0.822	1.524	0.808	1.441	0.766
	(0.53)	(0.28)	(0.53)	(0.27)	(0.51)	(0.27)
Brick & mortar	1.189	2.311**	1.243	2.463**	1.253	2.448**
	(0.38)	(0.67)	(0.40)	(0.73)	(0.41)	(0.75)
Growth focus	1.266	0.698	1.386	0.733	1.218	0.614
	(0.45)	(0.24)	(0.50)	(0.26)	(0.45)	(0.23)
International asp.	1.005	1.000	1.005	0.999	1.004	0.999
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Years active	1.032	1.026	1.028	1.021	1.032	1.025
	(0.03)	(0.03)	(0.03)	(0.03)	(0.04)	(0.03)
Perceived process	1.005	0.988	1.010	0.971	0.975	0.915*
	(0.04)	(0.04)	(0.05)	(0.04)	(0.05)	(0.04)
Pre-idea action	1.163†	1.182*	1.165†	1.193*	1.308**	1.399***
	(0.10)	(0.10)	(0.10)	(0.10)	(0.12)	(0.13)
Concurrent venture	1.012	0.976	0.823	0.852	0.725	0.721
	(0.32)	(0.29)	(0.28)	(0.27)	(0.25)	(0.24)
Full-time effort	2.888**	4.298***	2.966**	4.050***	2.385*	2.973**
	(1.01)	(1.40)	(1.05)	(1.33)	(0.87)	(1.02)
Human capital			1.227*	1.052	1.201†	1.008
			(0.11)	(0.09)	(0.11)	(0.09)
Social capital			0.958	1.269*	0.959	1.262†
			(0.12)	(0.15)	(0.13)	(0.16)
Action					1.114**	1.165***
					(0.04)	(0.04)
Model X^2		110.259***		122.737***		147.956***
Log likelihood		-368.417		-362.178		-349.568
Cox & Snell R^2		0.241		0.265		0.310
Nagelkerke R^2		0.274		0.301		0.352
ModelΔ X^2				12.478*		25.219***

Note: Contrasts still trying [Try] and becoming operational (consistent sales) [Sales] outcomes against base outcome of terminating the venture creation attempt [Term]; $N = 399$; Industry dummy variables included in all regressions; Regression parameters expressed as odds ratios, standard error in brackets(); † $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; Two-tailed significance test used for hypotheses tests.

Table 6 Robustness test (III) for action, human and social capital on venture outcome

Independent variables	Model I		Model II		Model III	
	Try	Cash	Try	Cash	Try	Cash
Constant	0.296	0.240	0.168†	0.093*	0.106*	0.065*
	(0.25)	(0.25)	(0.16)	(0.11)	(0.10)	(0.07)
Regional location	0.980	1.139	1.019	1.186	1.063	1.229
	(0.26)	(0.37)	(0.28)	(0.39)	(0.30)	(0.41)
Indep. business	3.391***	1.282	3.325***	1.296	3.466***	1.352
	(1.14)	(0.48)	(1.12)	(0.49)	(1.20)	(0.52)
Product based	0.584	0.251**	0.573	0.242**	0.614	0.254**
	(0.20)	(0.11)	(0.19)	(0.11)	(0.21)	(0.11)
Venture novelty	1.018	0.900	1.008	0.885	1.018	0.888
	(0.06)	(0.07)	(0.06)	(0.07)	(0.06)	(0.07)
High technology	1.459	0.739	1.424	0.695	1.315	0.658
	(0.45)	(0.29)	(0.44)	(0.28)	(0.42)	(0.27)
Brick & mortar	1.234	3.902***	1.304	4.239***	1.322	4.263***
	(0.35)	(1.38)	(0.37)	(1.53)	(0.38)	(1.55)
Growth focus	0.989	0.654	1.036	0.713	0.977	0.682
	(0.32)	(0.28)	(0.33)	(0.31)	(0.32)	(0.30)
International asp.	1.004	1.000	1.003	0.999	1.003	0.999
	(0.00)	(0.01)	(0.00)	(0.01)	(0.00)	(0.01)
Years active	1.048	1.026	1.044	1.020	1.037	1.015
	(0.03)	(0.04)	(0.03)	(0.04)	(0.03)	(0.04)
Perceived process	1.008	0.981	1.001	0.960	0.958	0.935
	(0.04)	(0.04)	(0.04)	(0.05)	(0.04)	(0.05)
Pre-idea action	1.181*	1.173†	1.188*	1.182†	1.303**	1.258*
	(0.09)	(0.10)	(0.09)	(0.10)	(0.11)	(0.12)
Concurrent venture	0.874	1.035	0.759	0.810	0.654	0.734
	(0.25)	(0.36)	(0.23)	(0.29)	(0.20)	(0.27)
Full-time effort	2.338**	5.826***	2.274**	5.559***	1.678	4.522***
	(0.72)	(2.06)	(0.71)	(1.99)	(0.55)	(1.68)
Human capital			1.098	1.193†	1.070	1.178
			(0.09)	(0.12)	(0.09)	(0.12)
Social capital			1.125	1.222	1.126	1.234
			(0.12)	(0.16)	(0.13)	(0.17)
Action					1.105***	1.068*
					(0.03)	(0.03)
Model X^2		134.466***		140.860***		155.526***
Log likelihood		-353.726		-350.529		-343.196
Cox & Snell R^2		0.286		0.297		0.323
Nagelkerke R^2		0.326		0.338		0.367
ModelΔ X^2				6.394		14.666**

Note: Contrasts still trying [Try] and becoming operational (consistent cash positive) [Cash] outcomes against base outcome of terminating the venture creation attempt [Term]; $N = 399$; Industry dummy variables included in all regressions; Regression parameters expressed as odds ratios, standard error in brackets(); † $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; Two-tailed significance test used for hypotheses tests.

Table 7 Linear regression models of human and social capital on venture creation action (baseline & robustness test I).

Independent variables	Action to first sales (Base)			Action to cash positive (Rob I)		
	Model I	Model II	Model III	Model I	Model II	Model III
Constant	13.697***	11.656***	12.808***	13.640***	11.582***	12.760***
	(1.17)	(1.41)	(1.22)	(1.26)	(1.52)	(1.32)
Regional location	-1.063*	-0.868†	-1.061*	-0.800	-0.604	-0.798
	(0.52)	(0.52)	(0.51)	(0.56)	(0.56)	(0.55)
Indep. business	-0.932	-0.893	-0.913	-0.728	-0.689	-0.709
	(0.64)	(0.63)	(0.63)	(0.69)	(0.68)	(0.68)
Product based	-0.537	-0.510	-0.658	-0.565	-0.537	-0.685
	(0.66)	(0.66)	(0.66)	(0.72)	(0.71)	(0.71)
Venture novelty	-0.146	-0.162	-0.161	-0.172	-0.189	-0.188
	(0.11)	(0.11)	(0.11)	(0.12)	(0.12)	(0.12)
High technology	0.569	0.498	0.516	1.225†	1.153†	1.173†
	(0.59)	(0.58)	(0.58)	(0.63)	(0.63)	(0.63)
Brick & mortar	0.622	0.668	0.682	0.011	0.058	0.071
	(0.54)	(0.54)	(0.54)	(0.58)	(0.58)	(0.58)
Growth focus	1.328*	1.472*	1.358*	1.075	1.221†	1.105†
	(0.62)	(0.62)	(0.61)	(0.67)	(0.67)	(0.66)
International asp.	0.004	0.002	0.002	0.001	-0.001	-0.001
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Years active	-0.032	-0.044	-0.039	0.018	0.006	0.012
	(0.05)	(0.05)	(0.05)	(0.06)	(0.06)	(0.06)
Concurrent ventures	2.239***	1.859***	2.057***	2.486***	2.102***	2.306***
	(0.54)	(0.56)	(0.55)	(0.59)	(0.61)	(0.59)
Full-time effort	2.917***	2.891***	2.732***	3.479***	3.452***	3.296***
	(0.53)	(0.53)	(0.53)	(0.57)	(0.57)	(0.58)
Human capital		0.395*			0.399*	
		(0.15)			(0.17)	
Social capital			0.475*			0.470*
			(0.20)			(0.21)
R^2	0.169***	0.181***	0.179***	0.166***	0.177***	0.175***
F	4.683	4.833	4.779	4.586	4.692	4.633
Adj R^2	0.133	0.144	0.142	0.130	0.139	0.137
ΔR^2		0.010*	0.019*		0.009*	0.016*
ΔF		6.687	5.734		5.834	4.811

Note: $N = 481$; Industry dummy variables included in all regressions; Standard error in brackets(); † $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; Two-tailed significance test used for hypotheses tests.

Table 8 Linear regression models of human and social capital on venture creation action (robustness tests II & III).

Independent variables	Idea to first sales (Rob II)			Idea to cash positive (Rob III)		
	Model I	Model II	Model III	Model I	Model II	Model III
Constant	12.984***	10.796***	12.031***	12.318***	10.273***	11.244***
	(1.21)	(1.46)	(1.27)	(1.32)	(1.59)	(1.37)
Regional location	-1.256*	-1.011†	-1.256*	-0.969†	-0.740	-0.969†
	(0.53)	(0.53)	(0.52)	(0.57)	(0.58)	(0.57)
Indep. business	-0.260	-0.261	-0.229	-0.043	-0.044	-0.009
	(0.65)	(0.64)	(0.64)	(0.70)	(0.70)	(0.70)
Product based	-0.443	-0.429	-0.568	-0.577	-0.564	-0.718
	(0.67)	(0.67)	(0.67)	(0.73)	(0.72)	(0.72)
Venture novelty	-0.007	-0.030	-0.027	0.037	0.016	0.014
	(0.12)	(0.12)	(0.12)	(0.13)	(0.13)	(0.13)
High technology	0.727	0.646	0.668	1.311*	1.235†	1.244†
	(0.61)	(0.61)	(0.61)	(0.66)	(0.66)	(0.66)
Brick & mortar	0.498	0.572	0.555	-0.032	0.038	0.033
	(0.56)	(0.56)	(0.56)	(0.61)	(0.61)	(0.60)
Growth focus	1.362*	1.545*	1.399*	1.276†	1.447*	1.317†
	(0.64)	(0.64)	(0.64)	(0.70)	(0.70)	(0.69)
International asp.	0.007	0.005	0.005	0.005	0.003	0.003
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Years active	-0.001	-0.013	-0.007	0.048	0.037	0.042
	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)
Pre-idea action	-1.001***	-0.999***	-0.988***	-0.899***	-0.897***	-0.885***
	(0.12)	(0.12)	(0.12)	(0.13)	(0.13)	(0.13)
Concurrent ventures	1.956***	1.533**	1.800**	1.991**	1.596*	1.815**
	(0.56)	(0.58)	(0.56)	(0.61)	(0.63)	(0.61)
Full-time effort	3.199***	3.202***	3.013***	3.759***	3.762***	3.550***
	(0.55)	(0.54)	(0.55)	(0.59)	(0.59)	(0.59)
Human capital		0.425**			0.397*	
		(0.16)			(0.17)	
Social capital			0.500*			0.563*
			(0.20)			(0.22)
R^2	0.315***	0.327***	0.325***	0.273***	0.283***	0.285***
F	8.241	8.313	8.245	6.728	6.730	6.811
Adj R^2	0.276	0.288	0.286	0.232	0.241	0.243
ΔR^2		0.011**	0.020*		0.012*	0.019*
ΔF		7.049	6.020		5.196	6.488

Note: $N = 399$. Industry dummy variables included in all regressions; Standard error in brackets(); † $p < 0.1$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; Two-tailed significance test used for hypotheses tests.

Table 9 Bootstrapped direct and indirect effects for human and social capital on venture creation outcome contrasts (baseline & robustness test I).

Effect & outcome contrast	Human capital		Social capital	
	Sales	Cash	Sales	Cash
Still trying vs Terminated (N = 292, 372)				
Indirect effect	0.056**	0.052**	0.040*	0.046*
	(0.02)	(0.02)	(0.02)	(0.02)
Direct effect	0.152*	0.085	0.100	0.117*
	(0.06)	(0.06)	(0.07)	(0.06)
Total effect	0.208**	0.137*	0.140*	0.163**
	(0.06)	(0.06)	(0.07)	(0.06)
Operational vs Terminated (N = 340, 253)				
Indirect effect	0.081**	0.084**	0.088***	0.084**
	(0.03)	(0.03)	(0.02)	(0.03)
Direct effect	-0.031	0.077	0.077	0.082
	(0.06)	(0.07)	(0.06)	(0.08)
Total effect	0.050	0.162*	0.165**	0.166*
	(0.07)	(0.07)	(0.06)	(0.07)
Operational vs Still trying (N = 370, 361)				
Indirect effect	0.015	0.006	0.012	0.005
	(0.01)	(0.01)	(0.01)	(0.01)
Direct effect	-0.178**	0.012	0.015	0.005
	(0.06)	(0.06)	(0.06)	(0.06)
Total effect	-0.162**	0.018	0.026	0.010
	(0.06)	(0.06)	(0.06)	(0.06)

Note: Bias corrected, standardized effect sizes based on 1000 bootstrap sample redraws; Two-tailed significance tests; † $p < 0.10$; * $p < 0.05$; ** $p < 0.01$;*** $p < 0.001$

Table 10 Bootstrapped direct and indirect effects for human and social capital on venture creation outcome contrasts (robustness tests II & III).

Effect & outcome contrast	Human capital		Social capital	
	Sales	Cash	Sales	Cash
Still trying vs Terminated (N = 237, 305)				
Indirect effect	0.042*	0.038*	0.043*	0.041*
	(0.02)	(0.02)	(0.02)	(0.02)
Direct effect	0.108	0.039	0.004	0.059
	(0.07)	(0.06)	(0.07)	(0.06)
Total effect	0.150*	0.077	0.047	0.100
	(0.07)	(0.07)	(0.07)	(0.07)
Operational vs Terminated (N = 288, 213)				
Indirect effect	0.049*	0.048*	0.051*	0.055*
	(0.02)	(0.02)	(0.02)	(0.03)
Direct effect	-0.072	0.038	0.077	0.056
	(0.07)	(0.08)	(0.06)	(0.08)
Total effect	-0.023	0.086	0.128*	0.110
	(0.07)	(0.08)	(0.06)	(0.08)
Operational vs Still trying (N = 310, 302)				
Indirect effect	0.007	-0.001	0.003	-0.001
	(0.01)	(0.01)	(0.01)	(0.01)
Direct effect	-0.171*	0.006	0.068	0.012
	(0.07)	(0.07)	(0.07)	(0.07)
Total effect	-0.163*	0.005	0.071	0.011
	(0.07)	(0.07)	(0.07)	(0.07)

Note: Bias corrected, standardized effect sizes based on 1000 bootstrap sample redraws; Two-tailed significance tests; † $p < 0.10$; * $p < 0.05$; ** $p < 0.01$;*** $p < 0.001$

Table 11 Summary of theorised conceptual relationships, direction of empirical effects observed and robustness tests of hypotheses.

Hyp	Independent variable	Mediator variable	Dependent variable	Outcome contrast		Statistically significant				Hypothesis supported
				Test	Reference	Base	Rob I	Rob II	Rob III	
1	Action		Venture creation	Still trying	Terminated	Yes	Yes	Yes	Yes	Yes
				Operational	Terminated	Yes	Yes	Yes	Yes	
				Operational	Still trying	No	No	No	No	
2a	Human capital		Action			Yes	Yes	Yes	Yes	Yes
2b	Social capital		Action			Yes	Yes	Yes	Yes	Yes
3a	Human capital	Action	Venture creation	Still trying	Terminated	Yes	Yes	Yes	Yes	Yes
				Operational	Terminated	Yes	Yes	Yes	Yes	
				Operational	Still trying	No	No	No	No	
3b	Social capital	Action	Venture creation	Still trying	Terminated	Yes	Yes	Yes	Yes	Yes
				Operational	Terminated	Yes	Yes	Yes	Yes	
				Operational	Still trying	No	No	No	No	
	Human capital		Venture creation	Still trying	Terminated	Yes	No	No	No	
				Operational	Terminated	No	No	No	No	
				Operational	Still trying	Neg	No	Neg	No	
	Social capital		Venture creation	Still trying	Terminated	No	No	No	No	
				Operational	Terminated	No	No	No	No	
				Operational	Still trying	No	No	Yes	No	

Table 12 Descriptive statistics and correlations.

	Variable	M	SD	1	2	3	4	5	6	7	8	9	10	11
1	Terminated	0.28	0.45	1										
2	Still trying	0.31	0.46	-0.42*	1									
3	Operational	0.44	0.50	-0.41*	-0.59*	1								
4	Regional	0.51	0.50	0.00	-0.13*	0.10*	1							
5	Indep. business.	0.81	0.40	-0.15*	0.14*	-0.07	-0.04	1						
6	Product based	0.39	0.49	0.11*	0.02	-0.09*	0.08	-0.04	1					
7	Venture novelty	3.85	2.46	-0.04	0.15*	-0.13*	-0.10*	0.01	0.05	1				
8	High technology	0.31	0.46	-0.09	0.18*	-0.12*	-0.11*	-0.05	-0.05	0.25*	1			
9	Brick & mortar	0.50	0.50	-0.05	-0.14*	0.19*	0.13*	-0.06	-0.11*	-0.18*	-0.14*	1		
10	Growth focus	0.26	0.44	-0.05	0.20*	-0.14*	-0.13*	0.01	0.10*	0.18*	0.17*	-0.18*	1	
11	International asp.	51.16	35.57	-0.05	0.17*	-0.14*	0.02	0.01	0.24*	0.18*	0.20*	-0.29*	0.20*	1
12	Years active	3.34	4.70	-0.08	0.09*	-0.03	0.02	-0.03	0.10*	0.08	0.04	0.00	-0.02	0.14*
13	Perceived process	16.51	3.65	-0.04	0.11*	-0.07	-0.16*	-0.01	0.03	0.26*	0.16*	-0.11*	0.21*	0.16*
14	Concurrent venture	0.35	0.48	0.02	0.03	-0.01	-0.08	-0.10*	0.08	0.06	0.09	-0.06	0.19*	0.15*
15	Full-time effort	0.37	0.48	-0.24*	0.05	0.17*	0.00	-0.02	-0.03	0.12*	0.09*	0.02	0.12*	0.14*
16	Human capital	5.46	1.79	-0.10*	0.16*	-0.04	-0.15*	-0.04	0.00	0.11*	0.11*	-0.10*	0.03	0.18*
17	Social capital	2.37	1.32	-0.12*	0.03	0.08	-0.03	-0.03	0.05	0.13*	0.10*	-0.09*	0.07	0.17*
18	Action	14.06	5.87	-0.25*	0.05	0.20*	-0.09*	-0.09	-0.04	0.02	0.06	0.02	0.15*	0.06

		12	13	14	15	16	17
13	Perceived process	-0.04	1				
14	Concurrent venture	-0.07	0.14*	1			
15	Full-time effort	0.01	0.14*	0.09*	1		
16	Human capital	0.08	0.13*	0.28*	0.08	1	
17	Social capital	0.05	0.23*	0.18*	0.18*	0.27*	1
18	Action	-0.06	0.31*	0.24*	0.29*	0.19*	0.19*

Note: $N = 493$ (except International aspiration: $N = 483$, and Years active: $N = 491$); * $p < 0.05$; All significance tests were 2 tailed.