Conference Name: Australian Centre for Entrepreneurship Research Exchange Conference 2013

Conference Location: Queensland University of Technology, Gardens Point

Conference Date: 6 – 8 February, 2013

ISBN: 978-1-921897-55-9

Editor: Per Davidsson

Paper Title: On the Resource Foundations and Triggers of Lucky Events

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On the Resource Foundations and Triggers of Lucky Events

ABSTRACT

This study takes an inductive approach to explore multiple contingencies that create different types of lucky events for entrepreneurs. In particular the resource base (internal versus external) and trigger (exogenous versus endogenous) each provide two contingency conditions by which lucky events can be categorized in a 2x2 table. The categories are derived from analysis of 39 lucky events of new ventures in Vancouver, Canada. Each category is described by a different ethos and related to a different type of activity. This study synthesizes and expands the scope of research on serendipity, opportunity recognition, effectuation theory, and exaptation.

Keywords: strategy, qualitative, individual, growth, luck, effectuation, exaptation

INTRODUCTION

A core theme in entrepreneurship research is the focus on the events and actions through which entrepreneurs realize opportunities (e.g., Bygrave, 1993; Davidsson, 2004). Despite the frequent anecdotal evidence that many significant events occur out of the blue or as 'lucky accidents' (Moore, 1994; Dew 2009; Chandra & Yang, 2011), such events are underrepresented in the literature. This may be because such evidence challenges causal theories about entrepreneurship and the origins of new opportunities, akin to effectuation theory's challenge of causal logic (Sarasvathy, 2001). This research analyzes the stories of 'lucky' events (as perceived by the entrepreneur) in the development of new ventures to reveal four different forms of luck. The four forms of luck synthesize recent research on effectuation (Sarasvathy, 2001), exaptation (Dew, Sasarvathy & Venkataraman, 2004), and serendipity (Dew, 2009), while extending these theoretical perspectives to include social network contexts. This extension also contributes back to the rapidly growing literature on entrepreneurial networks, which are recognized as a significant mechanism by which entrepreneurs identify and capitalize on opportunities (e.g., Hoang & Antoncic, 2003; Jack, 2010; Slotte-Kock & Coviello, 2010).

The bulk of the entrepreneurship theories typecast entrepreneurs as strategic agents, who intentionally pursue opportunities after weighing out all the benefits and risks (at least to the best of their knowledge). However, such a strategic view of entrepreneurship only reflects part of the phenomenon. Empirical evidence is rife with anecdotes and examples of significant events that are unplanned, unanticipated and triggered by circumstances in the environment beyond the entrepreneur's control (Dew et al., 2004; Moore, 1994). While some argue that luck determines no more than 17% of entrepreneurial performance (Liechti, Loderer & Peyer, 2010), others argue that it plays a significant role in explaining entrepreneurial performance (Dew, 2009; Denrell, 2004, 2005). Overall, thought, the role of luck and chance is seldom recognized in the literature, and only faintly alluded to in the network and opportunity recognition literature (e.g., Kaish & Gilad, 1991; Baron, 2006; Ozgen & Baron, 2007). While networks are often proposed as sources of new ideas and opportunities, a gap in the literature remains regarding the activities or behaviors by which identification of unexpected opportunities occurs. The paucity of research exploring the influence of luck and chance in reaction to the environment is further confounded by the considerable attention the Miles & Snow's (1978) typology has received in the literature (e.g. Fiss, 2011) which marginalizes or dismisses the "reactor" type as an uninteresting and

underperforming class of actors. Instead, this research shows that many entrepreneurial opportunities arise due to reacting to and seizing unanticipated opportunities.

Consider for instance the probably exceptional but highly illustrative story of a software entrepreneur, interviewed as part of this research. A professor and venture capitalist happened lived in the same neighborhood in Vancouver, Canada, had kids in the same school, and went to the same neighborhood barbeques. After a few years, the venture capitalist told the professor that he believed his technology had commercial potential and that he was willing to join the board and help with patenting. But, to push the technology and company forward they would need more support. A former PhD student of the professor was familiar with the professor, the technology, and had his own entrepreneurial experience from launching and running a computer services venture. Luckily, the professor was able to recruit his former student as CTO and interim-CEO of the new software venture, a role for which he was deemed a "perfect fit" (Interview data).

A CFO was recruited to draw up a business plan and help with fundraising. The CFO was previously known to the VC due to a series of unexpected coincidences: (i) when the CFO first moved to Vancouver he stayed in a bed and breakfast (B&B), (ii) the owner of the B&B happened to know the VC and identified that both shared an interest in start-ups and were originally from the same country (overseas). This new knowledge lead to a meeting shortly after, and, four years later, the VC called on the CFO to join the venture. Soon after, at a neighborhood Christmas party, the CFO met a neighbor from his own street, whose brother was happened to actively be looking for investments. Within two months, the venture was funded, using "fresh money" from an exit from another local software venture.

This angel investor then brought in two key sales people who had also exited the same software venture and were then looking for new opportunities, one of whom would later become CEO. While the founder achieved modest success in leveraging prior government relationships from research funding to venture funding plus referrals to renowned legal services, one of the first big sales for the venture came about via a routine update talk to a national not-for-profit funding agency from whom the founder had received some research funding. One of the members of the not-for-profit in the audience expressed interest in the software for his large oil and gas operation. While this potential lead itself developed slowly, this interest revealed that there was a large market in the oil and gas sector, and triggered attending an international oil and gas industry conference. From that conference another major customer was acquired, which validated the market opportunity and helped put the next round of financing in place.

This story demonstrates the difficulty in forecasting which events will transpire when, and how entrepreneurs can quickly react to new and unexpected opportunities as they emerge. It also shows that opportunities may emerge due to a variety of contingencies. In the following section, I will review the extant literature on luck and related concepts, and present a set of criteria by which lucky opportunities may be classified. The criteria are based on iterating between the literature and findings in interviews I conducted on the evolution of technology-based ventures. The discussion on the criteria and empirical findings is then followed by a summary of implications for research and concluding remarks.

LITERATURE REVIEW

Luck and related concepts have been referred to and defined in a variety of ways. Some focus on the circumstances that trigger lucky events, such as "being in the right place at the right time" (Gompers et al., 2010, p.28). Other definitions shy away from mentioning timing and placement to focus on the outcomes of lucky events, such as "unexpected superior economic returns" (Barney, 1986, p. 1234) or "deviation from expected performance"

(Liechti, Loderer & Peyer, 2010, p. 14). The former include the element of surprise *that* something happened, while the letter indicate that something was expected to happen, but it was a surprise as to *how effective* it was. While lucky events are not exclusive to either definition, recent research in entrepreneurship has placed greater emphasis on the former. For instance, Dew's (2009) defines serendipity as "search leading to unintended discovery" through "a confluence of situational factors" (p. 735). Dew defines serendipity as the combination of (i) contingencies, (ii) prior knowledge and (iii) active search, and argues that luck is solely a factor of contingencies, not prior knowledge or active search. Nonetheless, he concedes that of these three factors, that contingencies are the main contributing factor for serendipity.

Related themes of unexpected contingency factors and timing are also visible in the effectuation literature, which claims that "effectuation, however, would be better for exploiting contingencies that arose unexpectedly over time," (Sarasvathy, 2001, p. 252) while hardly mentioning chance or serendipity, and not once mentioning luck. Similarly, recent work on exaptation by Dew, Sasasvathy and Venkataraman (2004) also avoids mention of luck, serendipity or chance while introducing readers to the unanticipated and unexpected opportunity to co-opt technology to a new context (i.e., exaptation):

> "The nature of exaptation suggests that one cannot pre-state a finite list of all possible exaptations of the myriad of technologies that exist in the world. We cannot predict ahead of time what the list might look like, even if we had knowledge of the complete array of technologies and artifacts that presently exist in the world, as we cannot predict all of the context dependent ways in which some subpart of a technology might have a use in some situation sometime in the future." (p. 79-80)

Another more recent definition echoes the old adage by viewing "luck as a situation which favors the prepared and capable minds. Luck can strike only firms who happen to be prepared to seize it when an opportunity presents itself" (Chandra & Yang, 2011).

In contrast to luck, the opportunity recognition literature proposes:

> "Opportunities emerge from a complex pattern of changing conditions—changes in technology, economic, political, social, and demographic conditions. They come into existence at a given point in time because of a juxtaposition or confluence of conditions which did not exist previously but is now present." (Baron, 2006, p. 107)

The essential difference is the element of surprise, that either the ability to act on the opportunity or the outcome of the opportunity exceeds expectations.

From these definitions, it is evident that there are a variety of factors that combine to create lucky opportunities, and that there is room for a more comprehensive definition of luck that is inclusive of these recent works on serendipity, effectuation and exaptation. Such a definition, as proposed here, may then contribute to debates in the literature regarding the nature of opportunities, entrepreneurial action and possibly assist in differentiating entrepreneurship from strategy. I start with a deliberately vague working definition of luck, which I then refine using inductive analysis. In general, events are considered to be lucky if (i) their outcome is better then expected, and (ii) they exist because of one or more unexpected (or accidental) contingencies (or circumstances) (co-)occurring simultaneously or co-incidentally, or occurring in rapid sequence as with chain-reactions and domino effects (Hertz, 1998). This definition is deliberately not exclusive to directed search, as with Dew's (2009) definition of serendipity, and is thus inclusive of deliberate (endogenous) attempts to get lucky as well as (exogenous) events that happen for other reasons beyond the control of the entrepreneur. Prior knowledge and mental preparedness are more specific contingencies, thus this working definition remains consistent with prior definitions.

As is revealed by this inductive research, there are multiple specific contingencies, including but not limited to prior knowledge, that cause events to be considered lucky. This working definition also explicitly includes the possibility that multiple contingencies may coincide. Such coincidences may cause the entrepreneur to perceive the event as being particularly lucky to have happened to them. While the emphasis of this research is on good luck, the findings may readily apply to bad luck with a reversal of condition (i) above: the outcome is worse than expected.

METHODOLOGY

This is an inductive study, in the spirit of grounded theory development (Glaser & Strauss, 1967), in which themes emerge from interviews while comparing them to the extant literature. Data were collected in the form of interviews using a Life History approach (McAdams, 1993). The interviews elicited stories about significant events in the life history of the venture as perceived by the entrepreneur. Of the over 200 significant events in the evolution of 28 ventures, I focus on 39 stories in which the entrepreneurs describe the event in terms of luck. Building on the above working definition of luck – a contingent event with better than expected outcomes – I contrast and compare these 39 stories using case study methods (Eisenhardt, 1989; Yin, 1994) to reveal two dominant types of contingencies: the trigger and the foundation. Triggers are categorized whether the event has endogenous or exogenous origins, and the foundation is categorized whether the event was contingent on prior internal resources (including knowledge) or one or more external resources. The latter foundation includes coincidences of multiple (interrelated) external resources unexpectedly becoming available to the entrepreneur.

The 39 stories are categorized according to the trigger and foundation to reveal four archetypes of lucky events. The categorization shows that most lucky events are based on resources and related opportunities that unexpectedly become available through the entrepreneur's network; i.e., fewer events are based on experiments or other forms of knowledge generation done by the entrepreneur in isolation. Roughly half the events have exogenous and endogenous triggers. Interestingly, four stories are combinations of two of the four archetypes of lucky events, and can thus be interpreted as exceptionally lucky events. Analysis of the words chosen by the entrepreneurs to describe their luck shows inconsistent use of the words luck, serendipity, chance, circumstance, fortune, coincidence, happenstance, and 'out of the blue'. Perhaps mirroring the lack of an agreed upon definition of luck in the literature, entrepreneurs use these words and descriptions interchangeably.

My intention for the general dataset is to gain a more accurate and finer-grained understanding of the processes by which entrepreneurs develop their network to develop their venture. While it is important to recognize that entrepreneurs are at an individual-opportunity nexus, this study probes deeper to ask how the opportunity came about, how they attempted to turn opportunities into reality, and who else was involved (if anyone). Interviews with entrepreneurs were conducted so as to elicit detailed stories about significant events the entrepreneur had experienced, without prescribing the specific nature of the event or actors involved (see also Bryant, 2007; Butts & Pixley, 2004; Fillis, 2006). Each interview included eight general themes for the stories, based on the Life Story approach (McAdams, 1993). For each story, probing questions were asked about who else (other than the entrepreneur, if anyone) was involved, and how they got involved.

Following guidance from the case study methodologies (Eisenhardt, 1989; Yin, 1994), entrepreneurs were selectively targeted if they had an interesting story to tell, so as to elicit more extreme or polarizing cases and stories than random sampling based methods. In order to increase the chances of gaining access to more interesting and potentially more

controversial stories, I leveraged my own personal network as recommended when approaching CEOs and founders of SMEs (Bartholomew & Smith, 2006). Participants in the study were not only invited from my immediate professional and personal network, but also by nomination from those in my network to others thought to have an interesting story to tell. The extent of my entrepreneurial network was a result of my prior career, during which I founded a consulting business, helping entrepreneurs with market research, business plans, and investor pitches. Through this experience, I became and entrepreneur myself, and got to know several hundred entrepreneurs and related service providers. Using this professional network, 605 invitations were emailed asking for entrepreneurs to nominate themselves or to nominate others to participate in the interviews. Semi-structured interviews were conducted until consistent patterns emerged. Of the 29 new ventures that participated (all based in the greater Vancouver, Canada area), 1 venture was deemed too early stage to include since they had only just launched their prototype. Of the ventures included (labels in brackets), 11 were biotechnology ("BIO"), 4 health informatics ("INFO"), 2 advanced manufacturing ("MFG"), 4 enterprise software ("SOFT"), and 7 web-based ventures ("WWW"). Ventures ranged in age from 3 to 47 years in age, and included a variety of outcomes such as IPO, acquisition, remaining private or bankruptcy.

After each interview, I personally transcribed the interviews so as to maintain intimate familiarity with the content. The transcripts totaled just over 22 hours of interviews, 321 single line spaced pages and nearly 200,000 words. Each of the entrepreneurs provided at least 1 story per question and often added other stories they felt were significant. The judgment of whether a story was significant or not remained with the participating entrepreneurs (see also Isabella, 1990 for use of participants interprenations of significance), as did their judgement of whether their story involved luck. Significant autobiographical events are reported to have higher recall accuracy than chronologically prescribed events (van der Vaart & Glasner, 2011), and serve as memory crutches for more specific details like dates, names and addresses (Bradburn, Rips, & Shevell, 1987). Of the 207 stories collected from these entrepreneurs, I focus on 39 stories (19%) in which luck played a role in the growth and development of the venture. This proportion is consistent with prior research that 17% of entrepreneurial performance is due to luck (Liechti, Loderer & Peyer, 2010). However, the 19% proportion of stories in this dataset may be a low estimate, because some entrepreneurs provided their stories in a very matter-of-fact way without mentioning any of the keywords used to isolate lucky stories. For instance, the story of the professor-turned-software-entrepreneur in the introduction does not include any of the keywords used to isolate lucky stories, even though, overall, he admitted "I think it's an amazing story, quite frankly, if you think about it."

Stories were flagged as relating to luck if they contained key words or phrases, including: luck (11 stories), serendipity (2), chance (6), circumstance (3), fortune/fortunate (3), coincidence (3), and happen/happenstance (12, 1 of which was already included in luck). Other 'lucky' keywords did not reveal additional good luck stories: timing (1 bad luck story), surprise (0), accidental (1, included in "luck"), and 'out of the blue' (3, included in "happenstance").

Findings

In this section, I describe the contingencies by which the lucky events can be categorized. I begin with a variation of Dew's (2009) more narrowly specified form of luck, i.e. serendipity, as a combination of contingencies: prior knowledge and active search. In order to explore other forms of luck in the data, I generalize these two contingencies to internal resources and endogeneity, followed by investigation of lucky events that are contingent on external resources and exogeneity. The resulting analysis reveals a 2x2 classification scheme

of lucky events, with the internal/external resources forming one dimension, and endogenous/exogenous triggers forming the other dimension. Each type of lucky event has different implications for different sub-literatures of entrepreneurship and different implications for how entrepreneurs can increase their chances that they will get lucky.

Experimenting

In consideration of the above definition of luck as contingent on active searching and prior knowledge, of the 39 isolated stories, three stories were identified in which the event was primarily contingent on the entrepreneur building on their prior knowledge (e.g., lab research and scientific exploration). This category of luck may be labeled 'experimenting' because it resembles an active search for a probable but unknown outcome.

Such lucky breaks are reminiscent of Thomas Edison experimenting with every filament material he could imagine. According to legend, "Edison was pondering his experiments one night when he began idly rolling a piece of compressed lampblack between his fingers" (Adair, 1996, p. 77)[1]. The material was abundant and known to him from his telephone experiments, but its use as a filament was an unexpected surprise to him until then. In this classic case, the entrepreneur was actively searching, had prior knowledge, anticipated a discovery, but did not know the timing of it, nor its effectiveness.

To illustrate, here are quotes from the three events from three different biotechnology entrepreneurs that fit this form of luck. Two are related to experimentation leading drug discovery, while the third is related to experimentation leading to market validation:

> "I don't think there was any great understanding. It was just .. Let's start running stuff through here, everything in the lab. Anything that we can get our hands on, Let's just see how it works. So as I say, more serendipity than following some sort of scientific plan." (BIO6a)

> "The molecules that we made looked very exciting. They turned out still .. again lot of serendipity .. to be probably the best [chemicals of their type] that have ever been made. But pure serendipity." (BIO4d)

> "Basically we'd look for buildings where there was groups of physicians, [..] And we would apply to put a lab in the building. At that time there was no licensing, so [..] would take a chance at that time, that the physicians would use our services versus [the competition] just up the street. [..] You take a chance that the lab would be a success, and we weren't successful in all cases. In some cases it was obvious that no one would use us, or they weren't interested. There wasn't enough volume, and some of those areas we'd have to close down. Now, it's a different ball game. You have to apply to the government to put a lab in the building. [..] Now, they're like gold, because if you have a license in the building, no one else can put a lab in the building. So it's very controlled. But it wasn't controlled at that time. You took your chances." (BIO1c)

Each of these stories indicates that the entrepreneurs actively 'took chances' on experiments that were plausible based on their current knowledge, however improbable. For each entrepreneur, the luck resided not so much in the success of their experiments themselves, but in being the first to succeed and claim rights to those successes. Following Dew, Sarasvathy and Venataraman's (2004) exposition of adaptation vs. exaptation, this category of luck may also be labeled adaptation, since the desired outcome is essentially known (on a success-failure basis), but the resources must be adapted until a minimum level of success is attained. Returning to the overlooked "reactor" type (Miles & Snow, 1978), these entrepreneurs found themselves reacting to the outcomes of each of their experiments and improvising each new experiment based on the success or failure of the previous one.

[1] http://trove.nla.gov.au/work/21469666?selectedversion=NBD11831566

Trend Watching

The next category of luck evident in the data is trend watching. By and large, these entrepreneurs plodded along their own development path while keeping an eye out for exogenous changes in the environment to which they could apply their existing resources. Returning to Dew et al.'s review of adaptation versus exaptation, they explain that exaptation "points to a [..] phenomenon [..] that depends on context changes that change the utility of technologies. Exaptation [..] thrives on acts such as connecting a technology with a new domain of use – in other words, on technology-domain combinations, not on technology-technology combinations" (2004, p. 73). Such exaptation has been attributed as the source of "lucky accidents" (Chandra & Yang, 2011), in which the entrepreneurs intentionally pursue a given technology and only later stumble across a more effective application of it. Rather than evolving with the intention to fit an anticipated context, the success of the unexpected context (i.e., exaptation) "is the by-product of the evolutionary process" (Chandra & Yang, 2011, p. 14).

Of the 39 stories in the dataset, four matched this set of circumstances: prior resources and unintentional discovery (as opposed to active search). The first entrepreneur explains how they discovered an opportunity to reposition their existing software as an acquisition target for a major incumbent:

> "And that's one of those fortunate circumstances [..]. It's a popular time. [The incumbent's] software resources have been at it for about 2 years. [..] They continue to under-fund it. [..] If they were to choose to develop something, and they started now, they might have something in a year, or a year and a half to two years. [..] That [delay gave us] a chance to drive a truck in and essentially takeover a large piece of the market place. [..] They're looking for opportunities to acquire and continue securing their market share." (INFO2a)

Another entrepreneur explains how he invested in process automation in order to build a scalable business, but it also turned out to be a wise investment due to competitive and regulatory trends:

> "I remember when we got one of the first [machines], that was more than the mortgage on my house. [..] I could see that the only way that we could expand was by automated equipment. [..] We recouped all that money within a year. [..] And that's the only way we could do all this, because at that time the government froze the fees for lab tests. We had to increase by cost of living [of] staff 4-5% a year, and our supplies were going up, and the only way we could get our costs down was to automate like mad and tie them into our computer. And I guess we were fortunate enough to put in the first lab computer in town, and we were fortunate enough we were the first or the second lab to start putting in automated equipment [..]. You didn't really have to be a Nobel scientist to see that the only we could do that and get our supply cost down was the only way that we could get by." (BIO1d)

The third example also illustrates how an entrepreneur was able to leverage his investment in his technology to a new context that emerged at that time:

> "The other thing that's happened, is our technology is based on a very potent [..] molecule and we've reengineered it [..] to make it very specific towards disease cells, as opposed to healthy cells. That, in a nut shell, is what the basis of our intellectual property is, is reengineering, refocusing [..] this molecule to various different disease states. But along the way, we've developed a lot of expertise and understanding of the parent molecule, [..] and an ability to handle this material. As a consequence of that, when bio-terror became a big issue in North America and the rest of the world, we were there to take advantage for funding for bio-terror products. And we have received actually quite a significant amount of investment through grants and contracts[..] . So all of these things have brought in additional money for the spin-offs of our major technology, and that's just happenstance. We didn't really rationalize that. That just happened to happen. We happened to be in the right place at the right time to take advantage of that funding. And frankly, had we not had that funding, I don't

know if we would be in business today. It did protect us, keep the wolf from the door for a few years." (BIO11a)

Lastly, the fourth opportunity was identified when the entrepreneur attended a talk about a specific kind of cancer. At the very end of the talk, the speaker mentioned a list of other diseases in the same body part, which could be treated using a therapy that the entrepreneur happened to be an expert in.

> "And that light went on, that moment. And I thought "of course". Because I knew about [the other disease], because .. I knew what the pathology was .. I'd looked at it because my mom had been diagnosed." (BIO4f)

Because the technological development and adaptation occurred in advance of the exogenous context change, these events are exaptations (see also Gould & Vrba, 1982 for the genesis of the term "exaptation"). Collectively, these four exaptations exemplify the oft-repeated Louis Pasteur quote that "chance favors the prepared mind." These entrepreneurs were initially focused on one context for their technology, but were quick to identify opportunities to leverage their technology towards an initially unexpected but surprisingly rewarding context once they became aware of the new context.

The next two categories repeat the endogenous vs. exogenous trigger for the lucky event, but are based on network resources, not internal resources. In other words, rather than luck being contingent on the entrepreneur's prior knowledge or resources, these lucky events are contingent on the entrepreneur's ability to recognize an opportunity to leverage the knowledge or resources of others in their network. While prior research proposes a relationship between network embeddedness and opportunity recognition, the details of the process, activities or behaviors remain unclear (Kaish & Gilad, 1991; Baron, 2006; Ozgen & Baron, 2007). Lucky events that arise to due the entrepreneur gaining access to valuable external resources are considered lucky if (i) the value is relatively well known, but the ability to gain access is unexpected, or (ii) the access was expected, but the value of the resources available exceeded expectations. In this dataset, these network-based events outnumber the internal resource-based events by a factor of five, indicating the importance of entrepreneurial networks and their evolution.

Pitching

This category of (12) lucky events are called pitching because they arise due to the entrepreneur pitching a business idea to someone in their network, i.e. they include active search contingencies. While they hope to attain access to highly valuable resources they believe their network contact has, they consider themselves lucky if the contact grants access to the network resource. In many cases, the contact (and their experience and network) was the embodiment of the resource, as with recruiting key employees, partners, or members of boards of directors. Other typical situations included pitching to investors, whereupon the entrepreneur gains the investor as an advisor or board member, but also their financial capital.

As explained by some entrepreneurs, it is often difficult to tell in advance what value new hires, partners or board members will provide, and that the entrepreneurs actively take a (calculated) chance and (retrospectively) consider themselves lucky to have accessed the specific individuals:

> "Honestly, putting a board together is really hard for an early stage company [..]. So you take just about anybody that's credible. And occasionally you can trade up. You know, like if you outgrow a director's ability to contribute, they'll either voluntarily say it's time to get somebody new, or "I've got to move on, and you need to get somebody going." But, it's really hard in an early stage company to find people who are willing to add to the directory. Particularly these days the liability's high and the rewards are silly. So why would anybody in their right mind want to be a

corporate director? So, no, we were lucky. Would I have loved to get some marquee names for directors? Maybe. Maybe, they wouldn't have done any work. At least our guys rolled up our sleeves and got in and contributed, and to this day we don't have marquee names. I don't have ex-politicians. I don't have movie stars. We have got people who know the industry, and people are pretty passionate about this company and what we're trying to do." (MFG2a)

"We typically don't go hire people with 10 or 15 years of experience, at least at that early stage. We look for people that are extremely hungry and thirsty. They have the skill sets. They have the knowledge. They have something to prove. Some might consider that to be very risky, because these people could be loose cannons. But, you know, that's where you really get to know the individuals personally, and you spend time with them as human beings, as opposed to an employee-employer relationship. So it was a very tough process to narrow that large pool down to a couple of people, because you're looking for the very select individual. And once you find it, you take a chance. At the end of the day, you've never going to find or you're never going to reach a 100% comfort level. You've got to reach 50-52% comfort level, and then take a chance. That's what we did. And we continue to do so to this day." (INFO4b)

In a more extreme situation, this entrepreneur fully expected to be declined during their pitch to a high level executive to invite him to become advisor to the board, only to have the executive propose unexpectedly favorable conditions under which he would join:

"It was very very significant for our company. It showed that we had enough of the right stuff to warrant the time of a very very high level executive. [..] But I think, definitely when [he] first agreed to be our advisor. And we had to retain him. And I distinctly remember the day that I asked him if he would be an advisor to the board. I didn't know him. He is not a friend, he is the brother of a friend of mine. And I thought, well, I would take a chance. I fully expected him to say no. But, I took him out for coffee. I told him what our company was doing and asked him if he would be an advisor. Of course being a start-up company we had no money whatsoever, and he's quite a highly paid consultant now. So, when he said he wouldn't do it unless he was a retained consultant, my heart fell .. down to my feet actually. Because, you know, that was the end of it. We didn't have money in the early days of the company to be able to do that. So I had bought him a cup of coffee, and my change was sitting on the table beside my cup. And he reached over and he put a finger on [some change] and dragged it back to him and said "consider me retained." So, he was retained for a dollar." (WWW3b)

Building on the above examples, when entrepreneurs pitch to others to get their support, their luck can increase if they get more than they asked for. For example, one entrepreneur pitched to investors purely for the practice and feedback, but ended up getting funded:

"They allowed me to practice my investor pitch on them. And after practicing my investor pitch on them a couple times, they decided they liked it. A combination of circumstances: (i) they had originally invited me to practice my investor pitch on them, (ii) they thought that they had already identified and were in the process of closing the final investment the fund was going to make. That particular opportunity, as we're going along the process, that particular opportunity blew up for them. And so they were sitting there, with a slot left open in the portfolio, and an LP had a pretty compelling business case. So they decided on that basis to start diligence. And from there chose to actually make the investment." (INFO2b)

Similarly, another entrepreneur approached a former investor in a previous startup for advice on manufacturing in China, only to find out that the investor recently started providing access to their local manufacturing facilities:

"So I pitched [my previous startup to] these [..] guys. They liked it. Everyone invested. And I kept in touch [..] knowing that they were doing a lot in China. And now we're seriously talking about them having do our manufacturing. [..] I feel really good about that. Because, having an existing relationship, a pre-existing relationship, a Vancouver company, all sort of coming to bear on this manufacturing problem in China... It just feels a lot safer. I can trust these guys. We've got common investors. They're down the street. I can reach them if I need to. [..] I never would have connected, if it weren't for the network that we built through financing these other start-up companies. [..] At that time they weren't doing that kind of manufacturing. They were only building

their own stuff. I had broached the subject with them quite a while before that, but [..] they had already outgrown their existing factory. So they didn't have any room to take anything else on. They weren't interested in doing that anyway. It's only now that they're diversifying their manufacturing to take on contract projects like ours. [..] I actually called them up one day just because we were having so many problems in China, and I wanted to see if they had anyone there who could give us some advice. And that's when it came to light that they were actually thinking of taking on outside manufacturing contracts." (MFG1a)

More philosophically, one entrepreneur explains their luck in having acquired a director who provides exceptionally valuable support:

"And to this day, the individual serves on our board of directors, and he really basically takes underneath his wings and introduces us to a lot of executives, what could be our customers or collaborators around the world. [..] You have to do a lot of work, but you also have to get lucky. And you have to come across key people that can take you to the next stage. Unfortunately, I believe, there are a lot great ideas for companies that simply never get to anywhere, simply because .. call it luck or whatever it may be, they never find that one catalyst to push them, to propel them to the next stage. Because you do need that. Everybody needs somebody to hold their hand." (INFO4a)

Social Networking

In contrast to the lucky pitching events, these events do not include active search (or 'taking a chance'), are contingent on exogenous triggers that occur "out of the blue" (as with exaptation), and are colloquially associated with being in the 'right place at the right time' or 'having opportunity fall in your lap'. Many of these (16) events are due to the entrepreneur connecting or being connected to others who pitch the opportunity to the entrepreneur. In these lucky events, the event itself is often unexpected, as is the outcome. This category may be divided further into events that involve only the entrepreneur and one other actor, or events that involve at least two other actors. The former are usually due to value of the other actors' resources directly to the entrepreneur, whereas the latter are due to the entrepreneur being able to derive a benefit from brokering value across two (or more) otherwise disconnected actors. Overall, this category may be labeled social networking because of the dominant role others in the network play in bringing opportunities to the entrepreneur, including brokerage opportunities, and the role general networking activities play (i.e. being out-and-about in the new ventures eco-system, than by targeted pitches to individuals).

The following two quotes from the same entrepreneur exemplify how they were able to find two investors more by a happy accident and general networking.

"It was my first Vancouver Enterprise Forum [networking event], and I met this person, just out of the blue. He was an insurance broker, selling personal life insurance. Our [first] investor was his client on the insurance side. So I think he was trying to expand his business and earn some commission on the side."(WWW7a)

"Well I met [our second round investors] through [..] the Top-40-Under-40 ceremony in 2005. So he and I were both awarded [..] that year, and then, so we chatted there. And it happened that he and [his partner] were actually looking to invest in a Swedish company in the same space. And He said "Well, oh my god. Why are we doing research there, when we have something in our backyard?" (WWW7b)

This category of lucky event gets more interesting when considering the stories in which entrepreneurs identified opportunities to broker resources across relationships. While some prior knowledge is required to identify the opportunity, the essence of the unexpected value to the entrepreneur is a derivative of the resource being brokered. Stories from two entrepreneurs illustrate slight variations of this scenario, in which the opportunity to leverage external resources appears out of the blue'. The first story illustrates how the brokerage opportunity occurred as an unexpected sequence of events, while second story illustrates how the

brokerage opportunity was coordinated simultaneously with both actors. In the first case the entrepreneur was approached to sell a major manufacturing asset it had just bought, resulting in the sale of their venture:

> "[Our acquisitor] had just phoned the company out of the blue and said "We'd like to talk to you about your [..] manufacturing asset." And it started from there, and [they] had some problems with manufacturing in Europe, and they needed North American manufacturing capability. And [we] had the plants in [Canada]. So in a matter of weeks, just hammered out a deal, and they bought the company. I guess it came quite out of the blue. [..] The reason they bought those manufacturing assets, was they were preparing to be able to manufacture their [product], once it was approved [..], so they were getting ready. They thought they would soon be in a position to commercialize their product, and they needed to be able to manufacture it. [..] And [we] bought [it] at a very attractive price [..] because [the previous owners] had since abandoned [,,] operations. (BIO9a)

In this second case, the entrepreneur was able to purchase the intellectual property (IP) of a major incumbent funded by the incumbent's competitor, on the condition that the competitor was hired to help develop the product. Because the source of the funding was not disclosed from the incumbent, the entrepreneur was able to buy the IP for a heavily discounted price.

> And that was actually the seminal moment that made [us] into a company. [The incumbent's competitor] got really intrigued with this idea of trying to actually pull the wool over [the incumbent]'s eyes, and get them to sort of give us [the IP] without [the competitor] being revealed as the money bags behind the scenes. [The incumbent] didn't want it. It was an embarrassment to them, because there were [customers] offended that they couldn't get the [product] anymore. So they wanted a deal to get out of it. But if [the competitor] had gone, it would have cost them millions of dollars to get it. Because [the incumbent] had already spent probably $40 million dollars on the [product] development, [..] and they'd want to get that back anyway. So we ended up negotiating with [the incumbent], and got a very sweet deal, basically. In fact we didn't have to pay a thing for the rights to the [product] up front. We got their whole [..] data [..] then we'd have to pay them something. It wasn't more than $5 million dollars. I mean it was really .. They gave it to us, basically. And in the meantime, we're making this deal with [their competitor]. [The] deal was that they put $15 million dollars worth of equity into [us], and then we agreed to do the actual development of the [product] to take responsibility for it [..], and pay for the [..] development of the product. [..] We were virtual, because we didn't have any infrastructure. [The incumbent's competitor] had the infrastructure, so we actually hired them [and] actually paid them back to do the [development]. That worked for them, because they didn't have any overheads on it. It was very sweet for them. It was a no lose situation. And we had the chance during those years, of learning how to do [product] development, and building our own competencies while that was going on. So that was very seminal. I mean, it was a very lucky deal. The other thing is the $15 million dollars was just the beginning, because once we had that deal in our pockets, suddenly the bankers start getting interested in this little company in Vancouver. And they want to raise money for you, and so we were able to do [..] an IPO [..] early on." (BIO4b)

This entrepreneur's story, also has the additional plot twist in terms of how they even found out about the opportunity to buy the IP from the incumbent. The aforementioned networking event was triggered by a trend watching event:

> "What happened with [the incumbent] was [..] they lost interest. [..] They stopped even supplying it for people who were [pilot sites]. And just at that time, I was in the east giving this seminar [at] which happened to have been one of [pilot sites]. [..] But I had met with people afterwards, and, you know, was taken out to dinner. And one of the people who was there, was this woman [..]. And she'd been [piloting the product], and some of [her customers] had done extremely well [with the product], and she was outraged that [the incumbent] had just shut it all off, and wouldn't let her get [the product]. And I kind of sat there and thought .. I mean, the light went on. "Well, maybe that's available. Maybe we can actually see if .. " By that time [..] I had actually learned to write business plans [..]. I knew what it took, and I knew what I'd have to do. So this is why, I think, when I heard about the [incumbent's product cessation] thing .. You know, this could be an opportunity of kind of jumping the queue really and getting a [viable] product, if they really don't want it." (BIO4e)

This fortuitous combination or sequence of multiple lucky events occurred for three other entrepreneurs, as with the opening story in this paper of the professor-turned-software-entrepreneur. While such combinations or sequences of lucky events are uncommon, they demonstrate that these categories are not mutually exclusive and that multiple contingencies can coincide or chain-react like domino effects (Hertz, 1998). Overall, we can classify and summarize the stories in a 2x2 table that contrasts the internal/external location of the resources on which the lucky event is based with the endogenous/exogenous trigger of the event, as in Figure 1. For each category, I describe the actions by which entrepreneurs can increase their chances of getting lucky, and have added a short phrase or two that captures the ethos of the category in more conventional language.

==== Insert Figure 1 about here ====

DISCUSSION

As illustrated in the opening story of the professor-turned-software-entrepreneur, luck may play a significant role in the development of a new venture. Effectuation theory and prior definitions of luck or serendipity can explain lucky events based on the entrepreneur's own resources, but these theories and definitions have room for improvement when considering contingencies that arise from network contexts (e.g., Kaish & Gilad, 1991; Baron, 2006; Ozgen & Baron, 2007). Recent research proposes that external sources may be "*the key* to discovering the lucky accidents" (Chandra & Yang, 2011, p. 8, emphasis added), but lack empirical detail on how this might occur or how these lucky accidents vary according to different contingencies. Sarasvathy's own work first declares that entrepreneurs can be more effective by "making use of contingencies as they arise" (2001, p 247), but then later skirts the issue of identifying contingencies by declaring that "one cannot know in advance all the uses that some oddball subpart of a technology might have in some oddball situation sometime in the future" (Dew, Sarasvathy & Venkataraman, 2004, p. 75).

Until now, we have been lacking a comprehensive definition of luck that includes internal and external resources as well as exogenous and endogenous origins of lucky events. Based on more accurate descriptions and understanding of lucky events and their various contingencies, we can begin developing theories on how to increase ones luck. The present findings indicate that lucky events based on internal resources (i.e., experimenting and trend watching) are uncommon, but may nonetheless yield unexpectedly significant benefits. Meanwhile, lucky events based on external resources are more common, indicating that they may also be easier to influence by the entrepreneur. Thus, entrepreneurs may find it easier to invest (take chances with) their time and energy (i) by pursuing new sales leads, while keeping an open mind for other new opportunities, and (ii) by celebrating and publicizing their accomplishments to draw the attention of others to approach them out of the blue with unexpected opportunities. The latter may also include network effects (domino effects or chain-reactions) in which an opportunity is actually a combination of multiple interdependent opportunities each involving different partners.

The inclusion of exogenous triggers to lucky events complements effectuation theory's logic of control. While Sarasvathy's (2001) characterization of U-Haul describes the entrepreneur's actions as if they had full control over each event (e.g., "established", "convinced", "contracted", and "offered" p. 248-249), this research reveals that there are yet still many significant activities that are unpredictable and uncontrollable by entrepreneurs. This lack of predictability or control rests in the fact the many lucky events are by their very nature contingent on others in the entrepreneur's network, whose cooperation and timing cannot reliably be predicted. It may be that Sarasvathy recognized the normative limitations of effectuation theory in her statement that "the normative aspects of effectuation, if any, for the

creation of successful firms would have to do with the "management" of failures rather than with their avoidance" (Sarasvathy, 2001, p. 259). In contrast, this research shows that many of the entrepreneurial actions taken (especially 'taking chances') is about the management of *probable* failures and appreciating that some long shots luckily work out.

CONCLUSIONS

This study contributes to research that unpacks the ability to anticipate events and outcomes (Isabella, 1990) and adds an element of surprise to the research on opportunity recognition and networks (Kaish & Gilad, 1991; Baron, 2006; Ozgen & Baron, 2007). It also unpacks the contingencies of lucky events – internal or external resources, and endogenous or exogenous triggers – to provide a more comprehensive definition and illustration of such events.

The implications of the findings in this study and the literature indicate that there are significant benefits to increasing exposure to opportunities by networking in general, as well as by 'shooting for the moon' in targeted pitches. While one cannot predict what the outcome will be, one can predict that there will be an outcome. However, such implications must also be taken in light of the opportunity costs involved in over-exploring opportunities, and not developing capabilities or resources to contribute to the value of the network. This research synthesizes recent developments in effectuation theory, exaptation and opportunity identification and expands these areas by being more explicit about the unpredictable nature of many entrepreneurial events.

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Figure 1: Categorization of lucky events by foundation and trigger