

A DYNAMIC MODEL OF ENTREPRENEURIAL OPPORTUNITY: INTEGRATING KIRZNER'S AND MISES'S APPROACHES TO ENTREPRENEURIAL ACTION

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ABSTRACT: We highlight the important role that time plays in conceptualizations of opportunity in entrepreneurship research. Through two longitudinal case studies, we introduce a more dynamic understanding of opportunities than portrayed by current theorizing, which tends to emphasize "opportunity discovery." By adopting

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a dynamic temporal perspective, we integrate Kirzner's and Mises's approaches to entrepreneurial action to generate novel insights about how entrepreneurs view opportunities as initial opportunity beliefs, how these beliefs change over time, and how these changes help inform scholarly research of opportunities. We argue that taking the role of time into consideration opens up new questions related to opportunity and the dynamics of its development.

INTRODUCTION

The pursuit of opportunities continues to be a central component of entrepreneurship research (Shane and Venkataraman 2000; McMullen and Kier 2016; McMullen and Shepherd 2006; Scheaf et al. 2019) despite its increasingly controversial role (Davidsson 2015; Foss and Klein 2018; Wood 2017). Entrepreneurial opportunities are “those situations in which new goods, services, raw materials or organizing methods can be offered and sold at more than their costs of production” (Shane and Venkataraman 2000, 220). Important in this definition is the notion that there is some correspondence between the willingness of the market to pay a certain price and the ability of the entrepreneur to provide a good or service at a certain cost. Such correspondence can be challenging if a considerable amount of time passes between the entrepreneur's inspiration, ideation, and implementation such that the situation inspiring the entrepreneur to generate an idea and convince various stakeholders to support its implementation no longer characterizes the entrepreneur's environment by the time implementation is complete.

The simple fact that it takes time to introduce a new good or service and that conditions may change in the meantime is often overlooked by opportunity-based entrepreneurship research. Instead, research into opportunities has historically adopted a static view of opportunities (Dimov 2011; McMullen and Dimov 2013; Scheaf et al. 2019), possibly because research on the topic has been primarily conceptual and focused on opportunity discovery as the stimulus for entrepreneurial action, while the relatively little empirical work has emphasized the discovery and evaluation of opportunities as opposed to their development. As a result, opportunities have been called “theoretically exciting but empirically elusive” (Dimov 2011, 57). Yet there have been scholars who have called for greater examination of the relationship between time and opportunity.

For instance, Jeremy C. Short and colleagues (2010) suggested that researchers “must understand the temporal dynamics of opportunities” to comprehend the opportunity process. Cameron M. Ford (2002) argued that including greater considerations of time could help researchers reflect the experiences of entrepreneurs, and Dimo Dimov (2007) noted that acknowledging time could help researchers to understand the continuous development and evolution of opportunities.

Despite such exhortations, the field has remained reluctant to address the theoretical development and empirical consideration of these temporal issues in the study of opportunity. Although there has been increased attention to timing effects (Choi, Lévesque, and Shepherd 2008; Wood, Bakker, and Fisher, in press), the relationship between the passage of (clock) time and entrepreneurship is limited (Lévesque and Stephan 2020). As a result, we have limited knowledge about how time affects opportunity development despite remarkable achievements concerning other aspects of the entrepreneurial process made possible by Austrian economics, most notably the work of Israel M. Kirzner, Ludwig von Mises, and Ludwig M. Lachmann. However, the field is a long way from fully integrating these approaches into the more recent discussions of the important dynamic and temporal aspects that stem from the pursuit of opportunities over time.

The purpose of this article is to explore the opportunity development process inductively using two longitudinal case studies. In doing so, the role of time in the notion of entrepreneurial opportunity is explored and emphasized. As “clock time” (Crossan et al. 2005) passes, the *potential* for the underlying conditions that comprise the opportunity also change. These conditions involve the willingness and ability of the entrepreneur and other potential producers to supply a product solution at a given price as well as the willingness and ability for enough customers to pay an offering price high enough to justify the entrepreneur’s effort. Passage of clock time introduces the potential for changes in the willingness and the ability of both producers and consumers as a function of changes in data and expectations about the external world (i.e., expectancies about resource availability and prices of inputs, substitutes, and competing solutions as well as current institutional conditions such as social, technological, economic, environmental,

and political) and the internal world (i.e., values of various states, such as preferences, desires, motives, needs, wants, beliefs, norms, and attitudes). However, as the passage of clock time does not necessarily imply a change to the underlying conditions, our focus is on a subjective perspective of time, as this is likely to impact the opportunity beliefs of the entrepreneur. We do acknowledge that clock and subjective time may intersect, as the more clock time passes, the more the *potential* for conditions to change grows, regardless of whether or not conditions actually change. Subjectively, this means that expectations of changing conditions for an opportunity may also change such that opportunities' attractiveness can wax or wane over time based on the entrepreneur's expectations.

This affects how research questions are framed and the theoretical perspectives used to answer these questions. Indeed, only longitudinal methods can effectively capture temporal dynamics of opportunities. Case studies offer the ability to shed light on the context and process of opportunity development, thereby allowing for theory development (Siggelkow 2007). Thus, new ventures that focus on the entrepreneurs' initial opportunity beliefs and subsequent metamorphosis of those beliefs to reflect the role of time throughout the opportunity process have been selected. In doing so, we capture how initial opportunity beliefs may be revised and reshaped (as a function of changes in data and their effect on expectancy-value considerations), thereby contributing to scholarly understanding of the process aspects of opportunity development. The influence of Austrian economics on these discussions is also highlighted with the hope of further clarifying these roots of mainstream entrepreneurship scholarship.

The results of the case studies suggest that an entrepreneurial opportunity in dynamic environments is conceptualized as an initial belief about the viability of a potential product solution idea for a market problem. Yet as time transpires between formation of the initial opportunity belief and the development of the capability to exploit the opportunity, the environmental conditions that originally presented the situation to advance one's desires change. Resources must be acquired, investors must be identified and persuaded to invest, relationships with suppliers and distributors must be established and nurtured, and customers must be made aware of the product offering (Zott and Huy 2007). Each of these

processes can be expected to take time, which muddies the view of the opportunity (McMullen 2015). Despite its conspicuous absence in the academic literature, this dynamic notion of opportunity is regularly communicated in practice and captured by the expression “The window of opportunity is closing.”

This study’s findings and analysis make three main contributions to the literature possible. The first is the elucidation of the implications of the role of time in opportunity research. This helps to move the current ideas in opportunity research toward a more dynamic view, serves to identify the appropriate boundary conditions for a static versus dynamic temporal view of opportunities, and reveals important questions that researchers have yet to consider. For instance, we illustrate that some views, such as Kirzner’s widely adopted view of entrepreneurial alertness and opportunity discovery, may be better suited for explaining the development of initial opportunity beliefs that can be identified and exploited instantaneously (such as arbitrage situations) than for explaining instances that are characterized by a large temporal gap between belief and action. When timing and process are more central to theorizing, we propose that Mises’s understanding of the entrepreneur as a coordinator of resources and bearer of uncertainty may offer a more promising lens through which to examine entrepreneurial action.

Second, by examining the fluid nature of opportunities, this study identifies factors that affect the temporal understanding of opportunities. For instance, understanding initial opportunity beliefs and how they change over time helps illuminate central but poorly understood concepts and dynamics in entrepreneurship research, such as how entrepreneurs navigate uncertainty about demand and supply caused by changes in data over time and how they form new local knowledge of time and place. By explicating the role of these key concepts, this article provides a more robust framework for understanding entrepreneurial action, one that recognizes the value of learning and iterative processes as part of the pursuit of opportunity.

Third, microlevel areas of Austrian economics that may be viewed as contrasting begin to be reconciled. Of particular relevance are the two distinct conceptualizations of the entrepreneur as either an alert

arbitrageur (Kirznerian entrepreneur) or an uncertainty-bearing producer (Misesian entrepreneur). The Misesian view may be reconcilable with the Kirznerian view at the macro level (Kirzner 1982) based on the fundamental assumptions about the functioning of economic systems, but at the micro level significant differences exist between the two approaches. Once the subject of the theory shifts from the economy in which the entrepreneur serves as an agent of the system to a particular entrepreneur who is the system of interest, these differences present serious consequences for theorizing about the entrepreneurial process and the role of uncertainty, ignorance, and knowledge within this process. Because most entrepreneurial action scenarios are unlikely to involve instances in which entrepreneurial opportunities are both recognized and exploited instantaneously, as Kirzner's (1973) theory of entrepreneurial alertness would suggest, we propose that the Misesian entrepreneur, as the coordinator of resources and bearer of uncertainty, may provide a more robust description of the entrepreneurial exploitation process as it occurs behaviorally. At the same time, Kirzner's theory about ignorance and alertness provides valuable insights into how and why certain individuals discover opportunities while others do not. These microlevel implications and their appropriate boundary conditions are highlighted, and a model where both lines of thought are integrated is proposed. Consequently, a more robust model of entrepreneurial action is presented, one that can capitalize on both entrepreneurial alertness as well as the temporal aspects associated with marshalling resources.

RESEARCH METHOD

RESEARCH SETTING

Two longitudinal case studies were conducted to inductively describe and analyze the role of time in the opportunity pursuit process. To track these changes, especially as they relate to the underlying "how" and "why" questions, a qualitative approach was adopted. Qualitative methods allowed for the capture of the rich array of experiences that firms go through during start-up and subsequent development (Van de Ven and Engleman 2004). This method is especially useful for sharpening existing theory

(Siggelkow 2007), because it enables investigation of the associated temporal processes (Gehman et al. 2018; Lévesque and Stephan 2020; Pettigrew, Woodman, and Cameron 2001) through which the opportunity, beliefs, and context influencing them change over time (Van de Ven and Huber 1995).

Both “real-time” longitudinal data to follow the goings-on in the firm and examined historical secondary data to understand the previous behavior of the firm were collected. This allowed for an extraction of theory from the ground up (Eisenhardt 1989; Eisenhardt and Graebner 2007; Yin 1984). The approach ensured that sampling was not based on the “success” of a firm and the feasibility of the opportunity. This was important, as definitions of opportunity are oftentimes only able to be determined *ex post* (Dimov 2011; Singh 2012). The first firm, a high-tech company named KeepOut,¹ was directly followed from its nascent stage before its inception, through its subsequent development and build-up of capital, until its eventual demise after approximately three years in business. The second firm, Buyonline, and their experiences with international e-commerce were under direct study for approximately one year as they underwent market expansion and organizational changes. Secondary data stretched back to the firm’s origin and the previous experience of the founder.

Using a theoretical sampling approach (Eisenhardt and Graebner 2007), the cases were selected because of their potential to offer unique insights into how new ventures pursue opportunities and how these opportunities change over time. Both firms fit the criteria of being (1) new ventures that were (2) operating in dynamic environments. Compared to firms in less dynamic environments, firms pursuing opportunities in more dynamic markets will likely experience greater change in the opportunities they pursue (Rindova and Kotha 2001). In addition to their theoretical relevance, both firms allowed extensive access to all company information. Because accessing archived documents, observing participant meetings, and interviewing all staff members was essential to gain a thorough understanding of the goings-on at the firm, full access was vital. Further, because the firms were in the nascent stages of development, it was not possible to infer any perceived viability

¹ Firm and employee names have been altered for anonymity.

of the original opportunities (i.e., they were not selected on the basis of the dependent variable). This is noteworthy because many studies of opportunities focus on “successful” firms, with opportunities defined retrospectively and tautologically (i.e., opportunities become inextricably linked with *ex ante* beliefs that prove true *ex post* through action) (Singh 2012). Hypothesis-testing research frequently espouses random sampling, but Pettigrew (1990) takes a more pragmatic approach for the employment of multiple longitudinal case studies, suggesting that intensive access to informants that can help to ensure that quality data is available. This method may be superior to other sample selection criteria. Access to data on a multitude of features (both external and internal) was of utmost importance for full comprehension of the central issues and also contributed to the choice of a limited number of cases that allowed for immersion by the research team (Siggelkow 2007).

The primary sources of evidence for both cases were a combination of personal interviews and secondary data. Interviews were semistructured in nature and took place between once a week and once every third week. Interviews generally lasted between forty-five minutes and two hours, with some lasting up to three hours. Interviews covered details of individuals (e.g., education, work tasks) as well as strategic issues (e.g., product development internal relationships and contact with other stakeholders). Over twenty interviews per case were carried out over a period of twelve months for Buyonline and over thirty months for KeepOut.

Open-ended questions were used to ascertain past and present beliefs, behaviors, and knowledge. We paid attention to both the prior knowledge of the individuals as well as the emerging knowledge levels via direct questions about contact with the market (customers, suppliers, industry reports, educational upgrading) and other staff members. Care was taken not to ask questions about specific constructs or other theoretical concepts that might constitute investigator bias. Most employees were interviewed more than once. All interviews, with the exception of one, were recorded.

Multiple informants holding different positions in the firms were interviewed. This only allowed for the collection of data on the executive perspective on knowledge and corporate actions, as well as the lower-level operational employees’ views of the daily

goings-on. In the case of KeepOut, all employees were conversed with, including administrative staff and venture capitalists. With Buyonline, all top management team members were interviewed at least once, as were the majority of other employees until we reached saturation. This multiposition perspective is an advantage when researching emerging firms (Van de Ven and Huber 1995).

The personal interviews were complemented with secondary data including all board of director meeting minutes, earlier business plans, customer comments on products, published material about the firms, and financial and industry data. For KeepOut, a detailed diary that the founders kept concerning what took place in real time and their perceptions about their strategic actions was available. This provided us with the daily occurrences at the firm, the specific comments that the founders had received from different stakeholders, and their thoughts about the future. Buyonline kept extensive formal meeting minutes and renewed their business plans with greater frequency. Taken together, these sources provided detailed accounts of changes and when they took place.

We also engaged in participant observation. We kept a record of our impressions and feelings following observations at lunches, meetings, product demonstrations, and informal contact. Through comparison between interviews, other corporate documents, and the participant observations, the data received from single interviews was triangulated with other sources of evidence to ensure validity (Flick 1999; Miles and Huberman 1994). Additionally, the time span between interviews allowed for the measurement of changes to opportunities, information possessed, and corporate actions. Table 1 provides a brief overview of both firms and the interviews conducted.

Table 1. Overview of the Two Firms Under Study

	KeepOut	Buyonline
Number of employees (max.)	10	29
Venture capital funding received	Approx. \$1.7 million	Approx. \$2.5 million
Total number of interviews	22	24
Number of interviews with top management members	9	9
Total number of people formally interviewed	10	18
Hours of interview data (approx.)	26	23
Time under direct observation	30 months	12 months
Main sources of data	Founder diary Personal interviews Observation Meeting minutes Business plans (revised)	Personal interviews Observation Meeting minutes Business plans (revised)

DATA ANALYSIS

During data collection, field notes and interviews were transcribed. The most important issues that were perceived to be taking place were noted but no hypotheses about the phenomena *a priori* were made, allowing the theory to emerge from the empirical data (Glaser and Strauss 1967; Locke 2001). Interviews were analyzed following the guidelines of Matthew B. Miles and A. Michael Huberman (1994). Triangulation was used, whereby corroborating evidence to support main facts was gathered. In many cases, this involved speaking to multiple people within each firm to capture their shared view on new developments. In some cases, this new information was made tangible and visible in revised business plans or was present in meeting minutes or diary entries. Few contradicting accounts appeared. For those few circumstances where information appeared to be contradictory, follow-up questions via email or telephone were posed to gain clarity into the matter. The lower-level employees provided greater in-depth accounts of their contact with customers, technologists, or their daily activities

on a number of occasions. Although some employees, at some stages, wondered aloud about the directions of the firms and the reasons for certain firm-level actions, all employees tended to agree about whether and when actions should be carried out. This was important for mapping out the opportunity and how it changed over time. Crosscase analysis provided us with the opportunity to compare our emerging conceptual categories and their properties with other data, iteratively refining impressions accordingly.

Once all data collection had occurred, extensive case studies were written about both of the firms. These were done following a temporal structure similar to an events-based case study (Van de Ven and Engleman 2004). The independent case studies were then compared to understand conceptual and temporal differences (such as changes in industry, changes in market demand, and new resource acquisition that encapsulated the opportunity dynamism at each firm over time). Given the significant amount of data collected, this process was both time consuming and informative. However, this method of analysis is typical for inductive research and where first- and second-order themes (Gioia, Corley, and Hamilton 2013) are examined over time. The writing and analyzing process took over one year, as new thoughts and the importance of earlier inputs and observations were constantly reviewed in relation to the cases. These findings were then presented to parts of the management teams to confirm that our analyses reflected the actual situations and experiences of the firms. Two researchers competent in this field read through the case studies and analyses for clarity. The (condensed) case studies were also used as teaching cases, which provided further feedback on the original findings as well as the understandability of the material. This further honed the ideas and implications of the respective cases.

TWO TALES OF OPPORTUNITIES SOUGHT AND FOUND

INITIAL OPPORTUNITY BELIEFS

KeepOut

KeepOut was founded by Andreas Gerber and Mathias Falcon on the basis of their shock in the number of theft of laptops. Statistics

that underlied these opportunity beliefs included that over 4 million PCs under three years of age were in use in Sweden, of which approximately 55 percent were used by companies. Computers were quite expensive in Sweden at that stage, selling for between \$1,500 and \$2,000. As a result, purchasing new computers was a large investment. In the founders' view, the current remedies focused on compensating the victim rather than preventing the crime. Andreas argued that "The best deterrent to a their is to ensure that he has absolutely no use of stealing the PC."

Gerber and Falcon felt that there was need for a product that would prevent anyone from being able to use a stolen computer, thereby decreasing the demand for stolen computers and consequently the desire to steal them. This became the entrepreneurs' initial opportunity belief. KeepOut identified potential customers who would use a large number of computers, such as management consultants and high-technology firms. The new venture began to collect market data, such as working with insurance companies to investigate the potential market size based on the total number of computers sold and thefts reported. KeepOut also began to examine competing or substitute products and expected growth patterns for the industry. They then approached potential customers to ascertain whether there was genuine interest in the potential product. Customers indicated that they believed the idea had huge potential. Because the data that is saved on the hard drives at work is imperative for a company's success, customers suggested that KeepOut's product would help them solve their problems with theft.

The KeepOut founders explained their idea for how the solution would work. An electrical pulse sent from the security card, their product, would destroy the functionality of these devices. By destroying these components, the computer would no longer be operational, the software and hardware could not be used, and any information or proprietary knowledge would be eliminated. The customers and KeepOut agreed that a \$150 price tag would be reasonable for such a product.

Support of the initial opportunity belief was gained via external sources. For instance, KeepOut successfully competed in local business plan competitions. They were awarded a \$10,000 grant from a local technology development organization. This

recognition led to further positive reinforcement (in the form of venture capitalist investment) about the attractiveness of the initial opportunity belief. As one of the venture capitalists noted, “We evaluate this project as having great potential....We believe in the market, we believe that this team can bring this product to market, and we believe that they have the right business concept.” Thus, KeepOut’s initial opportunity belief, held by the entrepreneurial team members and supported by external sources, resulted in the decision to engage in further entrepreneurial action. The entrepreneurs felt that significant earnings were possible and estimated future sales and profits on the basis of this target price.

Buyonline

Buyonline’s founder, Freddy Tengblad, developed his initial opportunity belief while working in the software industry. His initial belief was based on the inefficiency of traditional software distribution through CDs packed in cardboard boxes and shipped around the world using several means of transportation and warehousing. If there was a flaw with the product or a canceled order, then the whole process would be carried out again in reverse order. He also thought about his own customers and the long delivery times for software. On this initial gist, he began examining industry reports and found that electronic downloads had growing demand and that software sales were increasing at 15 percent per year. What held these two factors back was the lack of an efficient method to manage both the purchase and the distribution of this software. Tengblad’s vision was to develop a way to pay for and receive the software electronically, thereby eliminating the challenges of traditional distribution. If possible, he would be able not only to transfer software between relatively close areas such as Latvia and Sweden, but also throughout the world.

This initial opportunity belief became the central business focus of Buyonline—to deliver software electronically via an online store. Tengblad clarified: “The original plan was to be a software reseller, a portal for software, a one-stop shop where you would find all kinds of software. And the only place you would need in order to buy software, wherever you lived, and whatever software you were looking for.”

To examine this belief further, he began to collect market data. Freddy contacted experienced managers in the software industry whom he trusted to discuss the potential of Buyonline. They were quite positive about the idea and agreed to become part of the firm. Additionally, industry reports at that time were extremely positive about future industry growth. Freddy's experience meant that he also had some contacts in the venture capital industry. His contacts expressed eagerness for the opportunity that Freddy had identified; this further strengthened his belief in the viability of the initial opportunity.

CHALLENGES TO OPPORTUNITY BELIEFS

KeepOut

Based upon their initial opportunity beliefs, KeepOut began to work on overcoming some of the technological complexities presented in their product. The two founders acquired the assistance of two German engineers who were to take care of product development and essentially all technical aspects. To finance product development, they acquired venture capital investment worth \$400,000. The technology behind the product was still somewhat hazy at this point, although the idea and potential functionality were clear. The engineers, Loftus and Vittle, went through a stringent trial and error process, both alone and in connection with a university professor in Germany. This process was much slower than expected. Even though it took six months to develop the device's specifications, the more detailed work with the sensor and software communication aspects still needed to be done. This required further testing and research before a prototype could be built. Gerber and Falcon were not pleased with the amount of time involved in developing this first functioning product. Gerber stated, "I threatened them....I asked them how they were going to be able to live without a salary for the six months extra than they had taken to finish the product...until they could fulfill their part of the contract." Gerber was acutely aware of the potential impact of the unexpected delays. The issue of the length of time in product development led Gerber to begin to question the firm's ability to develop the product they had hoped to. The German engineers had

finally built a model that they felt had top-of-the-line technology, but they still needed to develop a satisfactory product suitable for the specified \$150 price tag.

While this product development was going on, Gerber and Falcon engaged in growing the firm in preparation for the eventual sales of the final product. For example, they sought out a further capital injection, this time for \$1,300,000. With this money, they arranged for a new, larger office space. An external CEO with extensive management and sales experience was also hired. Other lower-level employees were hired and marketing features (such as a logo and website) were developed to prepare the firm to sell the product effectively and provide structure for the firm. The team also began to examine the potential distribution routes for the final product once it was ready.

One year after the meetings with customers where the target sales price of \$150 was established, the team had a working prototype that met that price demand. The plan was to produce ten thousand units. When the firm approached the potential customers again about sales, the reception was more tepid. One of the founders, Andreas Gerber, explained: "Our customers told us that computers are less expensive now compared to when we got started, and desktops are disappearing from the market more and more....If we were able to develop the first product quicker, like in a matter of one year, then there would still have been a large market for us. We simply didn't invest enough money in getting this product out there in time." This change in customers' willingness to pay a certain price fundamentally challenged the initial opportunity beliefs of the KeepOut team.

Buyonline

The initial challenge for Buyonline was to develop a workable interface that met their aspirations to be a global player that would be able to accept payments online and to deliver the software electronically. This involved figuring out a way to provide a technical solution that would solve delivery and quality issues. From a delivery standpoint, Buyonline needed to guarantee that customers had the flexibility to determine how they were going

to pay for their software. This incorporated different currencies, methods of payment, and timing of payments. Independent market research had suggested that customers from outside of the USA, which Buyonline also intended on targeting, refused to pay for something that they had yet to receive. This created a challenge, as the eventual technological solution would need to be able to send out deactivated software that only became active once payment was received. Receiving payment afterward would also alleviate the hassle of dealing with downloads that could not be completed or difficulties in internet connections. Because they could seriously derail customer interest in the (at that time) unproven method of downloading software via an e-store, these challenges presented a problem for Tengblad.

At first, Tengblad sought to circumvent these issues by finding existing software that would carry out these functions. The search ended fruitlessly, as Tengblad realized that a system that had met all these requirements and also had the capacity to hold at least 120,000 titles did not seem to exist. Realizing the importance of the technological solution, Tengblad decided to work closely with a group of programmers in Latvia. He had given them very clear instructions: “Make sure that this system you build is as secure and good as any other out there, hopefully better.” After a number of prototypes, the final product, known as Buyonline OS, could accept payment in thirty-four currencies, navigate six languages, provide antifraud reporting, and allow for multiple mediums of payment, including telephone, fax, and online methods. The technology could recognize which country the visitor was in and set the parameters accordingly—a notable innovation at that time. This technology was possible because Buyonline had secured \$2.5 million from two experienced venture capitalist firms. This enabled the programmers to develop the platform in a period of approximately four months at a cost of roughly \$2.3 million.

As Buyonline’s platform was approaching completion, Tengblad built industry relationships. For example, Tengblad attended a conference for the Association of Software Publishers where approximately nine hundred firms were present. At this conference a number of major firms volunteered to be the first publishers to provide titles for Buyonline’s e-store. The publishers felt that this business idea was fantastic and was going to revolutionize the

industry, and they wanted to be part of it. Tengblad was able to learn more about the industry and publishers' demands. Through these relationships, the Buyonline store had over twenty thousand software titles representing 170 publishers and customers in twenty-two countries. Sales initially grew but soon stagnated or decreased after a few months of operations. To drive more consumer traffic to their site, Buyonline experimented with marketing programs, advertising, etc., but nothing seemed to work. Tengblad realized that developing a brand name for end customers from scratch for a new global company was tougher than imagined: "It became too expensive for us to build our own brand with the end customer across the entire world." Many competing firms were failing at the very same endeavor with much larger marketing budgets. Tengblad began to question his initial opportunity belief.

UPDATED OPPORTUNITY BELIEFS

KeepOut

The length of time to develop KeepOut's product, changes in customers' willingness to pay the previously established price, and industry structural changes (such as expectations for network computer memory, increase in number of laptops, and price reduction for PCs), opportunity beliefs were seemingly altered. Based on these challenges to the perceived future feasibility of the opportunity being pursued, the main investors in KeepOut had a change of heart. This sentiment was shared by a member of the KeepOut board and the main venture capitalists, who realized that there was no longer the needed sales volume to make this opportunity feasible. The belief in the opportunity had been updated in a negative way; it was essentially determined that there was no longer a market for the KeepOut product.

Buyonline

At the same time that sales began to stagnate, companies interested in selling software online started contacting Buyonline, looking to buy or license the Buyonline operating system. However, Tengblad recognized that selling proprietary technology to competitors could

mean the end of Buyonline if the new firms were more successful at marketing. This prompted Buyonline to develop its operating system so that it could build and host stores for other companies as well as their own. Buyonline then went back to the companies that wanted to license or buy Buyonline OS and offered them a new service as part of a new strategy. Tengblad clarified:

We could now go back to these companies and say, "No, you cannot license our technology, but we have something better for you. We can build a store that looks like yours, and we will run it for you. And everybody will think they buy from you, but everything will happen here. And then we'll send you part of the profits....And you don't even have to pay a license fee; all you have to do is to take care of your own marketing."

Demand for these stores grew faster than the sales from the regular Buyonline download store. Companies that had already spent funds on developing brand names for themselves also prospered in their own countries. They were able to tailor their sites and marketing to match their home cultures. Buyonline avoided having to spend extra money on something that did not seem profitable (marketing to the general population) as well as having to adapt all their marketing for each country. The Buyonline OS already allowed for language and currency differences and thus did not pose a major obstacle to international expansion. The initial belief in the opportunity had been updated; Tengblad recognized that there was potentially a more lucrative market than before in leveraging his existing technology to solve customer problems in a different industry sector (business to business).

Buyonline also began to examine other markets into which to expand the business, such as e-books, music, film, games, and similar downloadable transactions. They attended conferences and used their contact network to keep informed about these new possible opportunities. Buyonline decided to invest small amounts in these new opportunities in anticipation of the moment when the "window of opportunity" might open. In doing so, Buyonline could learn more about each new market, update its technology, and position itself for the future. As a result of the updated opportunity beliefs, the managers at Buyonline realized that some opportunities were not as viable as others and sought a more lucrative opportunity.

DISCUSSION

The purpose of this study was to illustrate the role of time (as relevant changes in data) in the opportunity development process, from initial opportunity beliefs to challenges to those beliefs, to the updating of the beliefs (Shepherd, McMullen, and Jennings 2007). In the process, this empirical work revealed a more dynamic view of opportunity, one that takes into consideration potential changes to opportunity beliefs over time. This view of changing beliefs over time is not commonly found in the entrepreneurship literature (with a few exceptions), although some of the underlying logic is consistent with Austrian economics. By employing a well-established definition of opportunity (e.g., Shane and Venkataraman 2000) and examining how the initial opportunity beliefs of two entrepreneurial firms developed, were challenged, and were updated over a prolonged period of time as a function of market and industry dynamics, a framework is provided that is suitable for understanding how time affects opportunities. Table 2 below captures and shows the nature of these changes over time.

Table 2. Key Episodes in the Two Cases Over Time

	KeepOut	Buyonline
Initial opportunity belief	Computer security device	Online software retailer
Reason for belief	Personal experience Initial market feedback Industry trends and statistics Business plan competitions Financial investment	Personal industry experience Initial market feedback Industry organization support Venture capital investment
Challenges to initial opportunity belief	Length of time to develop product Reduction of prices in industry Development of alternate products (laptops, network memory storage) Changes in consumers' willingness to pay	Stagnating sales levels Competitors' performance Functionality of product
Updated opportunity beliefs	Insufficient market size Not worth further financial investment Liquidate company instead of further opportunity pursuit	More lucrative alternate market based on existing technology Ability of (new) customer to pay Leveraged own skills while allowing new clients to leverage their own Potential for further opportunity beliefs in tangential sectors
"Final" opportunity belief	No longer a feasible opportunity	Become a platform for other software retailers

THE FORMATION OF INITIAL OPPORTUNITY BELIEFS

The beginning of the pursuit of opportunities stems from initial opportunity beliefs (Shepherd, McMullen, and Jennings 2007), and an opportunity's perceived attractiveness (Wood and Williams 2014; Scheaf et al. 2019). These beliefs are interpretations of states, processes, events, and courses of action—interpretations that are considered to be true (McMullen and Shepherd 2006). They coalesce into a belief about the potential value and viability of an opportunity (Grégoire, Shepherd, and Lambert 2010; Scheaf et al. 2019; Wood and Williams

2014). In both of the cases examined, the initial opportunity beliefs were based on the combination of personal experience and market data that suggested that there was a potential market need. For KeepOut, that market data was based on the surprisingly high number of computer thefts. For Buyonline, the data concerned the ineffectiveness of current software distribution methods. These beliefs led the entrepreneurs to pursue the opportunities. Moreover, as they began to discuss their beliefs with others, both received additional data that supported the notion that they had discovered an opportunity worth pursuing.

In many ways, these observations fit well with current entrepreneurship models concerning the formation of opportunity beliefs and their connection to entrepreneurial action. For instance, Jeffery S. McMullen and Dean A. Shepherd (2006) note that the concomitant existence of knowledge about a potential opportunity and the motivation on behalf of the entrepreneur to act are constituents from which initial beliefs are formed. Others have argued that knowledge about a potential opportunity stems from changes in the environment (Davidsson 2015; Eckhardt and Shane 2003). This is also in line with Kirzner's (1973) explanation of entrepreneurial alertness, wherein certain individuals identify opportunities that others do not. Alertness is based on the existence of prior knowledge and latent desire. Indeed, these findings resonate well with this area of the literature.

What is noteworthy with these models is that they primarily concern the "discovery" of the original opportunity. In other words, these theories focus on the development of the initial opportunity beliefs. For instance, in Kirzner's view, the primary function of the entrepreneur is to discover price misalignments.² However, the opportunity beliefs that are initially formed are always successfully pursued (Rothbard 1985). This is illustrated in Kirzner's (1973) famous quote that "Entrepreneurship does not consist of grasping a ten-dollar bill which one has already discovered to be resting in

² Although Klein (2008) suggests that Kirzner's treatment of opportunity was metaphorical and not to be treated literally, Kirzner's view (literal or not) has been extremely influential in the development of the field of entrepreneurship and empirical research on opportunity discovery. Thus, despite Klein's argument, we feel it useful to treat Kirzner's views as being literal. One possible cause for the (mis)interpretation may be due to a change in the unit of analysis. Kirzner's arguments are presented logically at the macro level (price system), whereas entrepreneurship researchers have tended to apply them behaviorally at the micro level (individual entrepreneur).

one's hand; it consists in realizing that it is in one's hand and that it is available for the grasping." Inspired by Kirzner's ideas, much entrepreneurship research has focused on entrepreneurs' *initial* opportunity discovery and individual differences that lead some people but not others to discover these opportunities (e.g., Gaglio and Katz 2001; Korsgaard et al. 2016; McCaffrey 2014; Shane 2000; Tang, Kacmar, and Busenitz 2012).³

The data that precedes initial action is at least partially exogenous (Wood, McKelvie, and Haynie 2014). As a consequence, the data about possible market need is viewed subjectively (Barreto 2012; McMullen and Shepherd 2006) and subject to individuation (Scheaf et al. 2019; Wood et al. 2014; Wood and Williams 2014). This implies that the exogenous data is interpreted by evaluating the potential attractiveness of the opportunity through the unique lens of the entrepreneurs' own skills, abilities, experiences, and personal circumstances. To that end, it is an individual judgment that determines whether and how action is ultimately taken (Dimov 2007; Foss and Klein 2018; Grégoire et al. 2010; Wood and McKelvie, 2015). Because the data represents "the possibility for entrepreneurial action" (Kirzner 2009), it creates the stimulus that prompts entrepreneurial action (McMullen 2015), such that the entrepreneurs in both cases believed that they faced opportunities worth pursuing.

CHALLENGES IN OPPORTUNITY BELIEFS

With the passage of time, changes in data began to challenge the initial opportunity beliefs of both KeepOut and Buyonline. For KeepOut, the length of time involved in developing their product allowed conditions in both the external and internal environments to change. Doubt arose about their ability to produce a working product at the price needed to satisfy market demands. As KeepOut

³ Kirzner (2009) has emphatically denied that his theory of entrepreneurial alertness has anything to say about individual entrepreneurial behavior, explaining that it is intended only to explain the functioning of the economy given the existence of ignorance (Kirzner 1973) and to a lesser degree uncertainty (Kirzner 1982). He further notes that opportunities in his framework should be interpreted as analytical devices meant to highlight that the price system is encumbered by imperfect knowledge (Kirzner 1999), preventing applicability of Joan Robinson's (1969) approach to decision-making (Kirzner 1979).

invested in learning how to reduce the costs of their production capability (in line with their opportunity belief), market demand changed in unexpected ways, such that other challenges to the opportunity beliefs began to develop. For Buyonline, the challenges to initial opportunity beliefs took the form of competitive challenges. Sales levels began to plateau, as similar firms began pursuing the same opportunity, albeit with a slightly different solution.

Challenges to initial opportunity beliefs are consistent with ideas on learning in entrepreneurship. There is research to suggest that entrepreneurial learning is mainly experiential in nature (Corbett 2005; Politis 2005); entrepreneurs generate new knowledge based on their experience with the entrepreneurial situation. In the case of KeepOut and Buyonline, this learning was only able to take place through entrepreneurial action. This corresponds well with Dimov's (2011, 64) statement that "initial assumptions and intuition about future possibilities are gradually replaced with experiential facts and juxtaposition of circumstances."

Further, this view on the opportunity process is similar to Ludwig von Mises's view of entrepreneurship. For Mises, the entrepreneur is a coordinator of resources and bearer of uncertainty. He suggests that the "entrepreneurial function consists in determining the employment of the factors of production. The entrepreneur is the man who dedicates them to specific purposes" (1966, 290–91). Thus, Mises's entrepreneur is a producer. Importantly, Mises's (1966, 290) entrepreneur "deals with the uncertain conditions of the future. His success or failure depends on the correctness of his anticipation of the future." Thus, Mises's entrepreneur combines resources on the basis of beliefs about future demands, such that the exploitation of an opportunity starts with the initial opportunity belief, correct or incorrect. The issue of production also incorporates (subjective) time, which introduces the element of uncertainty into the entrepreneurial process, because (a) the preferences of customers may change between when the entrepreneur buys the resources to when s/he sells them (Kirzner 1973, 86; McMullen 2015); and (b) the entrepreneur may fail to produce the product at the estimated cost (Mises 1966, 343; McMullen and Kier 2016). It is these core components that are central in the Scott Shane and S. Venkataraman (2000) definition as well but are rarely addressed in empirical opportunity work.

Following in the footsteps of Mises, Lachmann (1976, 127–28), argues that all human action essentially happens over time, with time being the one dimension in which changes to beliefs take place: “As soon as we permit time to elapse, we must permit knowledge to change, and knowledge cannot be regarded as a function of anything else.” Because many entrepreneurial situations are unlikely to have instances where initial opportunity beliefs are likely to be developed and confirmed instantaneously, the Misesian entrepreneur, as the coordinator of resources and bearer of uncertainty, may provide a more robust description of entrepreneurial action, capturing the dynamic view of opportunity observed in the behavioral accounts of KeepOut and Buyonline.

Once the producing entrepreneur believes that there is an opportunity, s/he brings together resources to try to take advantage of this opportunity. In this process, the entrepreneur must take into consideration expectations for the *potential* of the underlying conditions to change before the end result is produced, such as whether resources can be better used for pursuing some alternative opportunity which may not have existed when entrepreneurial action began. Consequently, new data may lead the entrepreneur to reevaluate the initial assessment of the potential profitability of the opportunity because of changes in the availability, accessibility, or prices of resources used in production or because of actual or anticipated changes in consumer preferences induced by social, technological, economic, environmental, or political factors (McMullen 2015).

UPDATED OPPORTUNITY BELIEFS

Because of learning that took place over time, both KeepOut and Buyonline updated their opportunity beliefs. For KeepOut, the updating involved a conclusion that the opportunity was no longer worth pursuing. This suggests that what was originally understood to be an opportunity in the case of KeepOut may never have been an opportunity in the first place. As they manifested, circumstances showed that revenues did not exceed costs to achieve the profit needed to meet the criteria involved in the Shane and Venkataraman definition. Scholars (e.g., Gras et al. 2020; Kirzner 1999; Ramaglou and Tsang 2016) would therefore likely suggest that the KeepOut case was not based on an opportunity at all. This same assessment

likely holds for the case of Buyonline. The initial opportunity belief was not viable, but instead of obstinate persistence or abandonment, leadership chose to pivot, updating their opportunity beliefs to offer the software platform to competing firms and thus to pursue a more promising opportunity belief.

Opportunity research emphasizing the importance of learning (Cope 2005; Corbett 2005; Dimov 2007), pivoting (Fisher 2012; Grimes 2018; Navis and Glynn 2010), or happening (Dimov 2011)—i.e., maintaining a vision while experimenting to find the best path (Kirtley and O'Mahony 2020; Reis 2011)—suggests a process in which opportunity beliefs are continually updated (Shepherd, McMullen, and Jennings 2007; McMullen 2015). For instance, McMullen and Dimov (2013, 1491) note:

the importance of the time variable to entrepreneurship is more than a matter of logic, it can also pose structural challenges. As information is acquired over time, individuals organize it into useful knowledge structures. If new information is consistent with these knowledge structures, it is likely to augment or extend them, but in some instances, new information demands a reorganizing of existing knowledge structures in order for the information system to realize the full benefit of the new information.

It can be difficult, however, to reconcile this understanding of entrepreneurial action with a seemingly static notion of “opportunity,” a term often used to refer to both the stimulus and outcome of the entrepreneurial process (McMullen, 2015). As a result, a paradoxical deterministic portrait of entrepreneurship often emerges in which a beginning and end are discussed as if they were determined, while the journey in between is described as a discovery process requiring learning and pivoting (McMullen 2015). However, the case data for this study suggests that McMullen and Dimov's description may only apply to forward-looking beliefs about opportunity, not to backward-looking beliefs about whether the original opportunity belief was properly justified as an opportunity in the first place.

Initial opportunity beliefs deemed promising in early temporal stages are oftentimes still considered “opportunities” even after changing conditions have caused them to lose their luster, even by the entrepreneurs who chose to either replace them through pivoting away from or abandoning them entirely. This suggests that

entrepreneurs may conceive of opportunities both in ideal states when looking backward and actual states when looking forward, such that the initial belief continues to be considered an opportunity in the hypothetical, idealistic sense, regardless of subsequent facts. Consider KeepOut, for example. If we assume that KeepOut could have executed the original opportunity as intended under different circumstances, then a counterfactual belief remains justified that profit could have been realized. The actual failure to realize the ideal outcome can then be (and was) explained away as a matter of ineffective execution owing to unforeseen and unforeseeable circumstances, such that justification of the original opportunity belief was neither negated nor even undermined. Instead, the belief was relegated to a specific set of circumstances that the firm did not happen to encounter. Consequently, the original opportunity belief can be equated to a specific objective and a specific plan based on specific assumptions believed to make sense when formulated regardless of whether subsequent events reveal them as valid or not.

IMPLICATIONS

WHY DOES TIME MATTER TO OPPORTUNITY BELIEFS?

Entrepreneurship scholars have noted that there needs to be greater concern for the role of time in entrepreneurship (Lévesque and Stephan 2020; Wood, Bakker, and Fisher, in press) and opportunity research (Dimov 2011; Short et al. 2010). Time affects our understanding of opportunities for a number of reasons. First, the supply and demand conditions that give rise to opportunity initially may change over time. For example, the KeepOut entrepreneurs clearly felt that there was an opportunity worth pursuing. Had they been able to produce and sell the security device at \$150 when they first perceived the opportunity, customers would likely have bought it according to data on customer preferences at that time. This situation would therefore have been defined and treated as an opportunity. Had they asked whether customers would pay \$150 for the security device two years later, those surveyed would more likely have answered no. This temporal boundary condition would most likely have gone unnoticed had KeepOut had a readymade product at the time that they received customer feedback or if they had had the ability to buy

the product off the shelf somewhere. Thus, if KeepOut's pursuit of the opportunity had been more arbitrage based (i.e., instantaneous), then their initial opportunity beliefs would likely have been more justified.

Second, both Kirzner (1973) and Mises (1966) noted that time and the pursuit of opportunities are inherently related, yet there remains a gap in understanding how an entrepreneur's time perspective will determine his evaluation, and subsequent pursuit, of opportunities from an Austrian economics lens. When discussing the evaluation of an opportunity, both Kirzner and Mises limit the role of time, and timing within the context of the production of the proposed good or service. This overlooks the decision-making process by which an entrepreneur determines the (subjective) forecasted time, which is then used to evaluate the opportunity. In turn, future pursuits of opportunities are assumed to be viewed through the lens of prior knowledge (Kirzner 1973; Mises 1966). This conceptualization of the opportunity evaluation process overlooks an important time concept: time perspective. Despite the development of empirical measures for identifying the attractiveness of an opportunity (Scheaf et al. 2019) and the development of a time-based theory of entrepreneurial action (Wood, Bakker, and Fisher, in press), opportunities continue to be evaluated without taking an entrepreneur's time perspective into account. This necessarily introduces noise when trying to identify the determinants of an entrepreneur's forecasted time needed to pursue an opportunity. To bridge this gap, this study draws on an existing typology of time perspectives (Lévesque and Stephan 2020; Zimbardo and Boyd 1999), and limits its scope to two time perspectives: future time perspective and present-hedonistic time perspective (henceforth referred to as a present time perspective). A future time perspective focuses on plans that allow for the achievement of long-term goals, while a present time perspective focuses on the "here and now" (Lévesque and Stephan 2020).

Third, there are a number of areas that may begin to challenge initial opportunity beliefs. In returning to Shane and Venkataraman's (2000) definition of an opportunity, it was noted that an opportunity involved a temporal overlap between the customer's willingness to pay a certain price for a good or service and the entrepreneur's ability to provide that good or service at a lesser cost. These two factors reflect both a market side and a production side of the opportunity coin. KeepOut faced challenges stemming from their ability to produce.

However, it is argued that these issues stem primarily from KeepOut's time perspective. During KeepOut's market-side opportunity evaluation process, the entrepreneurs examined their opportunity using a present time perspective, asking potential consumers whether the product would be useful and whether a certain price would ensure that the product is still attractive to the consumer. Given the framing of KeepOut's questions, their entrepreneurial responses assumed away potential future alternatives and focused on evaluating the product within the existing competitive landscape of the industry. As a result, the challenges that KeepOut faced on the production side were exacerbated by the market side, where customer preferences and their willingness to pay came into question. When reevaluating their opportunity using a future time perspective, combined with their newly gained knowledge of the prototyping process, KeepOut realized that the viability of the opportunity had passed.

Buyonline, utilized a future time perspective when forming their initial opportunity belief, as can be seen in their recognition that emerging solutions would not allow Buyonline to develop a viable product and meet its product goals. This future time perspective extended Buyonline's estimated production timeline and drove them to develop proprietary software. In turn, this forced updated beliefs about original market entry timing and the initial opportunity belief. Therefore, the time perspective that each set of entrepreneurs used ultimately influenced their time management in pursuit of the opportunity as well as the subsequent time perspective lens used when their opportunity beliefs were challenged. For Buyonline the fact that other firms were pursuing a similar opportunity led them to question their initial beliefs, rather than technological or financial concerns. After investing a large sum of money in the development of their technological solution, they re-focused their attention on the market and its needs.

When Buyonline reevaluated its opportunity, they once again utilized a future time perspective, and realized that their original opportunity belief was indeed in need of change and that their chances for financial success were not what they had originally expected. This opportunity evaluation pattern was repeated, and subsequent opportunities were exploited, such as becoming a provider of download stores, a relationship manager for software publishers, and moving into other markets such as films, games, and

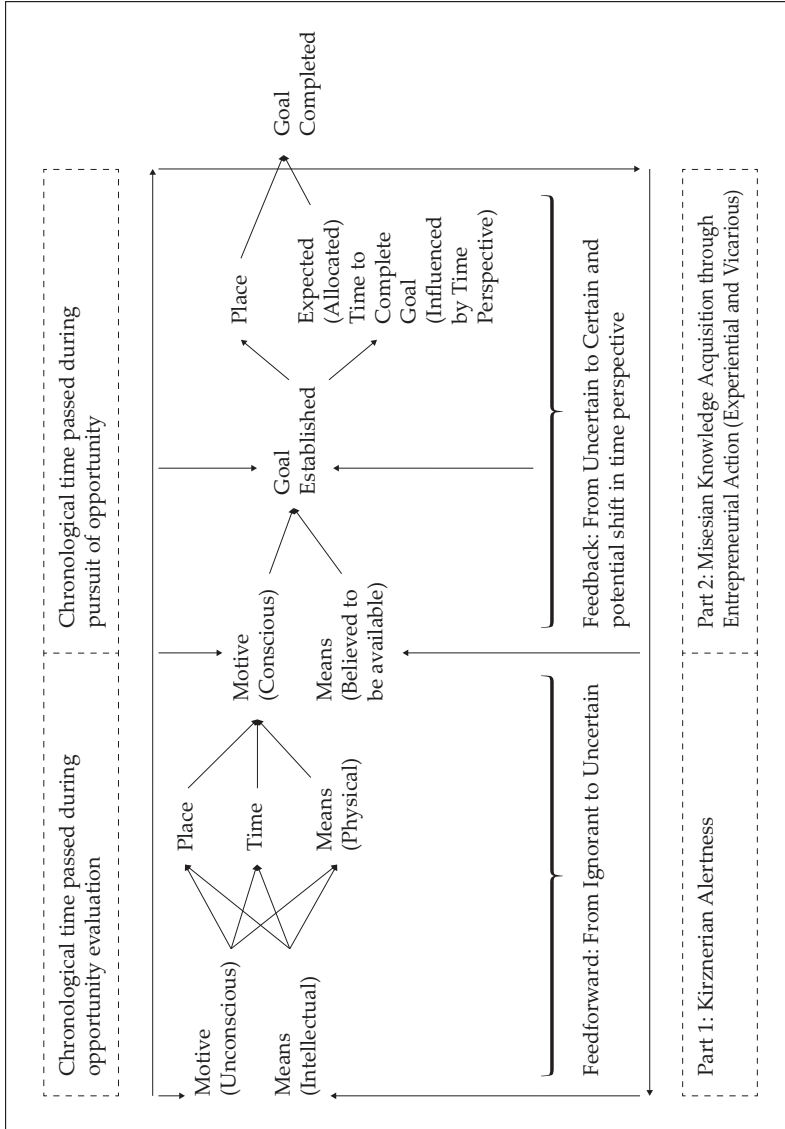
e-books. Thus, during the time the firm was putting its resources in place to exploit the opportunity via product development, the management team was able to learn more concerning the nature of the market's demands. This served Buyonline well by facilitating understanding of the consumers' current needs, how they were changing, and where new needs were emerging.

Finally, the role of time as the potential for data to change illustrates important but differing views of opportunity in the literature impacting different temporal stages. This recognition can lead to further understanding of entrepreneurial behavior more generally. Alexander Ardichvili, Richard Cardozo, and Sourav Ray (2003) attempt to integrate the psychological approach to "perception of opportunities," a more Schumpeterian "creation of opportunities," and the Kirznerian "discovery of opportunities" in their theory of opportunity identification, but they do not overtly consider the role of updating opportunity beliefs in their exposé. Others have also adopted differing views of opportunity (Alvarez and Barney 2007; Barreto 2012; Klein 2008; Ramoglou and Tsang 2016). What has yet to be explicated, though, is how simply acknowledging the impact of time introduces fundamentally different assumptions about the ontology as well as the epistemology of opportunities. Implicit assumptions and theoretical blind spots could be revealed through a more precise articulation of whether prominent theories of entrepreneurship consider opportunities to be dynamic or static phenomena (see McMullen and Kier 2016 for an example of theoretical and phenomenological gains from such problematizing efforts). Doing so will likely lead to different research questions and approaches to understanding opportunity and the entrepreneurial process.

ACKNOWLEDGING TIME IN AUSTRIAN-INFLUENCED ENTREPRENEURSHIP THEORIZING

Opportunities are dynamic phenomena whose identification is dependent on the entrepreneur's consideration of time. In this framework, the Kirznerian discovery of opportunities and the Misesian approach to updating opportunity beliefs are complementary theories that when viewed as a sequence can lead to a better understanding of the role of time and opportunities (Figure 1).

Figure 1. An Integrated Model of Entrepreneurial Action



Most entrepreneurial action scenarios are unlikely to involve instances in which entrepreneurial opportunities are both identified

and exploited instantaneously, as Kirzner's (1973) theory of entrepreneurial alertness would suggest. For this reason, the Misesian entrepreneur, as the coordinator of resources and bearer of uncertainty, may provide a more robust description of the entrepreneurial exploitation process. At the same time, Kirzner's theory about ignorance and alertness provides valuable insights into how and why certain individuals identify opportunities while others do not.

For instance, Kirzner's view of the arbitrageur appears to be most applicable when resources are already in hand or where there are opportunity beliefs that can be acted upon relatively quickly. Consequently, Kirznerian entrepreneurs are alert to data that is relevant to fulfilling their motives. The focus is therefore on the development of initial opportunity beliefs based on data that might otherwise go unnoticed. Whenever this data is superior to the data that their plans were previously based on, these entrepreneurs enjoy an immediate profit equal to the opportunity cost of foregoing the use of what would now be erroneous data in their decision-making. Situations where this view is most appropriate include pure arbitrage opportunities, such as importing and selling goods and services from previously unknown suppliers in countries where prices are lower, or in scenarios where the opportunities being pursued are based on established technologies and production methods (such as replicative business models). Such a scenario arguably falls within the domain of risk (Hebert and Link 2006), because the means-end relationship of which the opportunity consists is not new to the price system. That is, knowledge of the supply-demand relationship can be reasonably estimated based on, for example, having been tested in some form in another location (e.g., setting up an additional franchising outlet). Opportunities based on scientific discoveries and research and development (R&D) activities also seem to fit nicely with this model but more pertinently when knowledge is licensed or sold (e.g., patents) rather than exploited by its discoverers. Not surprisingly, conceptual and empirical microlevel research in the Kirznerian tradition has tended to focus on the role of prior knowledge and scientific knowledge that can be traded, including patents (e.g., Shane 2000; Shane and Venkataraman 2000).

On the other hand, the Misesian approach seems better equipped to embrace opportunities where there is a time lag between the entrepreneurial decisions being made and the outcomes of these

decisions. This may include technological opportunities where resources must be invested before the opportunity can truly be evaluated. This is similar to Schumpeter's (1934) focus on breakthrough innovations and overcoming what McMullen and Dimov (2013) refer to as "hardware" problems (i.e., problems involving access to the resources needed to transform an idea into a product). In other words, the Misesian and Schumpeterian approaches may exist in the realm of product innovations which take time to develop and may include more radically new innovations that are based on the discovery of new-to-the-world knowledge via R&D or some other methods. The focus of these types of opportunities, then, is not on the development of initial opportunity beliefs based on prior knowledge but rather on the process involved in learning, overcoming uncertainty, especially as it relates to production, and the challenges of updating existing opportunity beliefs.

More broadly, these contrasting views of the race to develop the capability needed to exploit the conditions believed to represent a fleeting opportunity stands in stark contrast to the misguided but fortuitous event in which one acts on what he or she erroneously believes to be an opportunity only to have the situation change in advantageous ways, such that "fortune favors the bold." In this scenario, action creates opportunity by serving to enable development of the capability needed to exploit a situation that is in the process of emerging. Distal motives manifest as a goal intention that, when coupled with conducive environmental conditions, is converted into behavior that produces a positive outcome (McMullen and Kier 2016). Distal motives may remain constant while the particular goal intention sought to fulfill those motives evolves in response to both endogenous and exogenous changes in the environment (McMullen and Kier 2016). Environmental change allows eventual fulfillment of the motive through continued efforts to match various goals and situations made possible through action (McMullen 2015; Sarasvathy and Dew 2005). The economic viability of these moves is a function of the attractiveness of the initial opportunity beliefs relative to other alternatives at time zero. It is also these same factors that need to be updated as time changes to determine if the economic viability is still present (McMullen and Kier 2016).

CONCLUSION

Some scholars have recognized that the pursuit of opportunities is a process, which, by definition, unfolds over time (McMullen and Dimov 2013; Short et al. 2010). However, despite the understanding of a temporal component to the pursuit of opportunities, acknowledgment of their temporal embeddedness is surprisingly absent from the entrepreneurship literature, although Austrian economists address it in different parts of the literature. It is hoped that this inductive empirical approach and discussion help bridge the gap between these currently disparate streams of work.

This study's empirical findings have significant implications for the field. First, they go beyond the mostly conceptual discourse that has characterized much of the opportunity research to date. Much of that discourse has emphasized the formation of initial opportunity beliefs while neglecting the potentially extensive lapse of time that follows those initial impressions. In contrast, this study finds that much, if not most, of the story of opportunity, is one of an unfolding entrepreneurial process through which initial opportunity beliefs are precisely that: initial and beliefs. These beliefs evolve as both the environment and the entrepreneur's understanding of the environment change. In acknowledging this, there are a few implications for future research. First, a more dynamic view of opportunities provides a new way to think about and research opportunities. Instead of viewing opportunities as the end of a journey whereby an entrepreneur exploits that opportunity, the dynamic view sees opportunities as moving targets that can be followed over time. Therefore, even though researching the formation of opportunity beliefs remains fruitful, more important lessons might be learned by focusing on the changes to and updating of these beliefs over time.

Second, this view serves to identify some boundary conditions of existing theories of entrepreneurial action, such as those rooted in Austrian economics. For example, Kirzner's highly influential theory of entrepreneurial alertness (1973, 1985) may be well suited to the context of "passive opportunities"—i.e., situations in which the entrepreneur already possesses both the cognitive and material means, as well as the motive to act before encountering the "opportunity." This would imply situations that are seemingly arbitrage-type opportunities. In contrast, there are a number of theories of entrepreneurial

action that focus more on bearing uncertainty as a quintessential function of the entrepreneur within the price system specifically (e.g., Hayek 1945; Foss and Klein 2012; Knight 1921; Mises 1966) or social systems more broadly (McMullen and Shepherd 2006; McMullen, Plummer, and Acs, 2007). These theories often emphasize “active opportunities”—i.e., situations in which entrepreneurs are able to imagine a future situation to be an opportunity before they possess the cognitive or material means to act and/or fully understand their desire to do so. Identification of an active opportunity begins as an initial opportunity belief that endogenous or exogenous changes in the environment then discourage or encourage. These opportunities are more uncertain than “passive opportunities,” because they bear search costs and risk as resources are irreversibly committed to their pursuit (McMullen and Kier 2016). This latter approach more fully embraces Mises’s view of the entrepreneurial “producer.”

A temporal view may therefore have broad implications for the study of opportunity. These implications may impact the varying research questions than what the field of entrepreneurship currently considers. At the most basic level, a dynamic view of opportunity is more focused on what happens to opportunities over time rather than the formation and early stages of the opportunity process. This implies prioritizing the role of continuous learning in challenging and updating opportunity beliefs rather than the role of prior knowledge, where the focus is on an opportunity that already exists. Such a change would entail examinations of the nature of the perception and specific data or happenings that challenge initial opportunity beliefs. Are these primarily on the market or the production side? Does the process involved follow the same patterns and thinking as “alertness” or are there other processes involved? Do certain entrepreneurs react more quickly to these challenging signals than others, based on cognitive or motivational factors? What cues suggest updating opportunity beliefs and pivoting? What are the expectations of time in forming and changing such beliefs? What are the specific subprocesses that take place as part of this updating process? And is there ever a “finality” for the opportunity—where the perception of time “ends”? Or to what extent can a firm’s continuous pivoting still be considered pursuit of the same opportunity rather than a completely new one? These issues are addressed further in table 3 below.

Table 3. Core Distinctions and Implications for Future Studies of Time and Opportunities

	Common static view	Dynamic temporal view
Main focus	Opportunity discovery: Where do opportunities come from?	Opportunity development: What do opportunities turn into? How and when do opportunity beliefs change?
Core assumption	Changes in the socioeconomic structure lead to the emergence of an opportunity that can be recognized, evaluated, and exploited by more than one agent.	An initial opportunity belief is the starting point of pursuit. The perceived opportunity is not necessarily the “exploited” opportunity
Types of research questions	How does prior knowledge affect opportunity discovery? Why do some individuals, but not others, recognize or exploit these opportunities? How do initial opportunity beliefs affect firm outcomes?	How does learning affect changes to opportunity beliefs? Under what conditions are opportunity beliefs challenged? What aspects of opportunity beliefs change? When do updates to opportunity beliefs take place? What new knowledge affects challenges to and updated opportunity beliefs? How do time expectations impact opportunity beliefs?
How pursued	Escaping widespread ignorance to “learn” that these opportunities exist; use resources at hand (bricolage)	“Learning” to time market and production; technological advances; acquisition of other resources
Context	Slow moving; predictable customer demand	Dynamic; long production time
Lenses to adopt	Opportunity formation; outcomes of opportunity pursuit; the source of opportunity beliefs; initial attention; static target	Opportunity development; opportunity belief updating; pivoting; strategic change; performance updating; moving target
Behaviors for which this view of opportunity may be more appropriate	Arbitrage	Innovation ranging from R&D projects to new products that require time to create and produce
Methods	Surveys; interviews	Longitudinal studies; repeated surveys; in-depth case studies; narratives; ethnography; quasi-experimental methods
Main strengths	Large data samples; capture heterogeneity	Real time data; unfolding process view; <i>ex ante</i> beliefs
Main drawbacks	Retrospective bias; attrition; Overlooking process; <i>ex post</i> rationalizations	Capture “failing” firms; time consuming; access to data

To capture the temporal nature of opportunity development, it is suggested that scholars employ methods that can actually capture

the dynamics involved in the particular entrepreneurial process they are examining. These may include repeated surveys that capture changes over time, ethnographic studies or longitudinal case studies (e.g., McMullen and Bergman 2017, 2018), or quasi experiments that follow the development of opportunities in real time. Regardless, *ex ante* identification of opportunities will be important if opportunities are to be disentangled from successful (profitable) outcomes (McMullen, Ingram, and Adams 2020). Otherwise, as Dimov (2007, 2011) argues, opportunity researchers will need to be satisfied with defining opportunities after they have been successfully exploited and with an *ex post* definition of opportunity. Finally, researchers should seek multimethod techniques drawing from multiple sources of data (see Autio, Dahlander, and Frederiksen 2013) that might represent specific opportunity beliefs and changes to beliefs from multiple perspectives.

In conclusion, although some scholars have suggested that opportunities lie at the heart of the field of entrepreneurship, there are still important insights to be gained. Although there is plentiful debate taking place in the literature, the intention is to help to move these discussions toward a dynamic view of opportunities. Further, Austrian economics continues to have a pervasive—albeit potentially underappreciated—role in most contemporary entrepreneurship discussions. The simple observation that this article began with—that it often takes time to respond to a situation viewed as an opportunity and that based on this temporal gap, conditions may change—is central to entrepreneurship and Austrian theorizing. By illustrating that opportunities are more fluid and dynamic than researchers previously have conceptualized, hopefully it has been shown that the field may need to employ different assumptions and methods to study opportunities. By integrating Austrian theory into mainstream entrepreneurship research, scholars will be able to develop a potentially valuable perspective for understanding the dynamic role of opportunities.

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