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Opportunity development as a learning process for entrepreneurs

Opportunity
development

251

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Abstract

Purpose – To contrast and test two conceptualisations of entrepreneurship: “opportunity discovery” and “opportunity development”.

Design/methodology/approach – Following the development of a conceptual framework for the study, an investigation was conducted through semi-structured interviews with the founders and managing directors of 20 start-up ventures in the Swedish mobile internet industry.

Findings – The study illustrates how entrepreneurial learning can be understood from the perspective of “opportunity development”. This conceptualisation of opportunity incorporates market interaction and real-life processes influenced by prior knowledge, resources, and the industrial context. It is especially appropriate in situations characterised by uncertainty. The alternative conceptualisation of opportunity (in terms of “opportunity discovery”) is more suitable in situations of low risk when initial opportunity perceptions are comprehensive, allowing entrepreneurs to focus on their products and services, rather than on potential customers and/or appropriation in the market.

Research limitations/implications – The study concerns one industry undergoing substantial changes during a specific period, which limits the generalisability of the findings.

Practical implications – Entrepreneurs might do well to launch ventures based on comprehensive opportunity perceptions.

Originality/value – The paper takes a novel approach to the discussion of opportunity in entrepreneurship.

Keywords Entrepreneurs, Entrepreneurialism, Learning processes, Capital ventures, Mobile communication systems, Sweden

Paper type Research paper

Introduction

Importance of the concept of “opportunity” as a key to understanding entrepreneurship and economic change has been identified by key authors including Fiet (1996), Gartner *et al.* (2003), and Shane and Venkataraman (2000). The term “opportunity discovery” has been used in the literature to imply that information sufficient to define an “opportunity” exists at a certain point in the process of discovery. For example, Shane and Eckhardt (2003) have argued that at the point of “opportunity discovery” the discoverer becomes aware of a profitable opportunity. This implies that there needs to

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be a certain level of information present to justify speaking of an “opportunity discovery”. This perception of “opportunity” must be comprehensive enough to serve as a cognitive objective for the entrepreneur who perceives the opportunity (Alvarez and Barney, 2005; Stevenson and Jarillo, 1990).

However, if the initial perception of opportunity is rudimentary, and thus insufficient to serve as a definite cognitive objective to guide an entrepreneur, the concept of “opportunity discovery” might be inappropriate. Such rudimentary opportunities require development to become viable. This suggests that a more appropriate term would incorporate a processual view that encompasses both the creation and the elaboration of an opportunity rather than its mere “discovery”. The term “opportunity development” thus represents a better conceptualisation of this process – because it incorporates the identification, the development, and the evaluation of an opportunity (Ardichvili *et al.*, 2003; Bhawe, 1994; de Koning, 1999). Moreover, the term “opportunity development” also includes reference to the juxtaposition and convergence of market needs and resources. All of this implies a focus on creation, rather than discovery. As Ardichvili *et al.* (2003, p. 106) observed, although elements of opportunities can be recognised, “. . . opportunities are made, not found”. If this is so, it can also be argued that the relationship between an “opportunity” and an entrepreneur’s prior knowledge and resources has been under-researched (Davidsson, 2005).

Because it is difficult to operationalise the concept of an “opportunity”, there has been a lack of empirical work in this area. In particular, research on “opportunity” has not focused on how, when, and why opportunities are “discovered” (Chandler, 2000). Moreover, little is known about the sensitivity of entrepreneurs to opportunities; nor about their self-perceptions in this respect (Hills, 1995). The present study follows the lead of Gartner *et al.* (2003) in contrasting the development of opportunities with the discovery of opportunities. In doing so, the present study explores the influence of prior knowledge and resources in this development process. The paper addresses three research questions:

- (1) Are initial perceptions of opportunity rudimentary or comprehensive?
- (2) To what extent are opportunities “developed” – for example, by becoming more comprehensive and clearer?
- (3) Do prior knowledge and resources influence opportunity development?

These questions are examined in an empirical study of 20 start-up ventures in the Swedish mobile internet industry. The study addresses the first question (dealing with initial perceptions of opportunity) using a relatively clear-cut outline of “opportunity” derived from the answers to a set of questions based on the extant literature. The second question (whether opportunities are developed over time) is then investigated on the basis that “development” should be reflected in the addition of more elements to the initial perceptions of opportunity. The third question pertains to evidence of when prior knowledge and resources have conditioned potential opportunity development. The study provides both theoretical and empirical contributions to the literature on the role of opportunity in entrepreneurship and is organised as follows. The next section presents a conceptual framework for the study including an exploration of the concepts of “opportunity discovery”, “opportunity development”, “prior knowledge”, and “resources”. The paper then presents the research methodology followed by results of

the empirical research. The result are discussed and this is followed with a concluding summary of the main findings and implications.

Conceptual framework

Opportunity discovery

The concept of “opportunity discovery” originated within the “Austrian School” of economics (Kirzner, 1997; von Mises, 1949). It departed from Knight (1921) and Hayek (1945) who had explored the dispersion of knowledge and the uncertainty that accompanies such dispersion. According to the “Austrian School”, “opportunity discovery” is usually posited as an instantaneous, low-risk transaction of arbitrage, even though its processual character in real life is typically acknowledged. With its dominant logic of economics, this school commonly views the entrepreneurial process as being initiated by such “opportunity discovery”. However, because the term “opportunity discovery” implies that sufficient information exists to recognise an opportunity, which might be misleading, it has been argued that individuals initially perceive that they have become aware of a profitable opportunity (Shane and Eckhardt, 2003). The corollary of this latter terminology is that an “opportunity” can be depicted as something (for example, information that can be found and noticed) that is adequate for directing entrepreneurs – that is, a guiding cognitive objective. Also implicit in this perspective is that entrepreneurs tend not to change tactics substantially over time when pursuing a given opportunity because speed is essential (Alvarez and Barney, 2005).

Two empirical findings have been utilised to corroborate this depiction of “opportunity discovery”:

- (1) a comprehensive perception of opportunity that contains several elements in the initial phase; and
- (2) little development of that opportunity.

In this regard, Shane (2000) has shown empirically that entrepreneurs recognise, rather than search for, information that stimulates opportunity discovery. This supports Kirzner’s (1997) theoretical claim that an element of “surprise” is involved. In contrast, Sanz-Velasco and Magnusson (2004) obtained similar results but drew different conclusions. These authors suggested that the initial element of “surprise” is not necessarily deterministic for the outcome of what unfolds as opportunities are discovered. Their conclusions suggest that other factors (such as resources) might play a part in what follows the initial “opportunity discovery”. Moreover, it has been argued that to better understand the locus and source of “opportunity discovery”, one must attend to the possession of idiosyncratic information that leads to the existence and identification of entrepreneurial opportunities (Shane and Eckhardt, 2003). An implication of this is that prior knowledge plays an important role in the discovery perspective of opportunity.

Opportunity development and the creation of opportunities

As indicated above, the concept of “opportunity discovery” can be contrasted with other conceptualisations of “opportunity” – in particular, that of “opportunity development” and the associated notion of “creativity”. There are both theoretical and empirical problems with the concept of “opportunity discovery”. An intriguing

empirical finding from a large quantitative study suggested that entrepreneurs who attempted to describe the “opportunity” they had presumably pursued never mentioned the words “discovery” or “surprise” (Gartner *et al.*, 2003). A theoretical problem with the discovery view is its assumption of a *telos* (“ultimate end”), whereby entrepreneurs discover errors, which they correct through their actions thus approaching a “correct” state. In other words, a “perfect” frame of reference is assumed to exist against which the current economic state can be measured (Buchanan and Vanberg, 1991). Drawing on this, Sarasvathy *et al.* (2003) suggest three perspectives on entrepreneurial opportunities:

- (1) an allocative view (which will not be dealt with here);
- (2) the discovery view; and
- (3) a creative view.

It could be argued that the creative view is teleological in the sense that actors are implicitly expected to aim at generating wealth. However, a general desire to “generate wealth” hardly constitutes a specific *telos*. Sarasvathy *et al.* (2003) argue that an advantage of the creative view is the absence of a definite *telos*, meaning that the outcome of the process is open to human endeavours. Rather than being discovered, new relationships between means and ends emerge in a process that creates new economic value. As Sarasvathy *et al.* (2003, p. 156) observe:

... opportunities do not pre-exist – either to be recognized or to be discovered. Instead they get created as the residual of a process.

This supports the contention that opportunities are created, rather than being found although elements of an opportunity can be recognised (Ardichvili *et al.*, 2003). Creativity and entrepreneurship have frequently been depicted as being similar (Meyer *et al.*, 2002; Winslow and Solomon, 1993), and some authors have posited opportunity as being a creative process (Christensen, 1989). The difference between “discovery” and “creation” of opportunity is mirrored by the difference between “causation” and “effectuation” (Sarasvathy, 2001). In exploring the role of effectuation, Sarasvathy and Simon (2000) posed the following question:

Where do we find rationality when the environment does not independently influence outcomes or even rules of the game (Weick, 1979), the future is truly unpredictable (Knight, 1921), and the decision maker is unsure of his/her own preferences (March, 1982)?

The theory of effectuation is based on three principles (Sarasvathy, 2003):

- (1) Whereas causal models focus on maximising potential returns by selecting optimal strategies, effectuation is based upon affordable loss and experimentation with given means.
- (2) Whereas causation models emphasise detailed competitive analyses, effectuation emphasises partnerships.
- (3) Whereas causation models appear suitable when pre-existing knowledge forms the source of competitive advantage, effectuation logic is more suitable for leveraging on unexpected contingencies.

In short, whereas causation involves choosing among given alternatives, effectuation is concerned with the generation of the alternatives themselves. In the context of the present study, causation is an appropriate perspective when the perception of an opportunity is comprehensive enough to serve as a cognitive objective with little development. In contrast, effectuation is an appropriate perspective when the situation is characterised by means rather than goals. However, the two approaches can sometimes be combined in a particular enterprise. For example, a core resource (such as technology) might be available and might provide enough information to constitute a cognitive objective. However, other elements (such as the customer model or the revenue model) might require substantial development. It is worth mentioning a depiction that resembles effectuation, namely bricolage. It is partly derived from Penrose (1959) and is defined as “making do by applying combinations of the resources at hand to new problems and opportunities” (Baker and Nelson, 2005, p. 333). Despite its merits this paper mainly focuses on effectuation.

The “birth” of an opportunity in a real-life setting is too variable to be depicted as a definite stage (Karlsson, 2001). Rather, “opportunity discovery” is more akin to an elaborate socio-cognitive process (de Koning, 1999; Witt, 2000). In such a process, action can come before the perception of an opportunity because sense-making often follows action (Weick, 1979). Indeed, initial perceptions of an opportunity can be extremely rudimentary, and the more rudimentary they are, the greater the need for development of the opportunities through the addition and development of other elements. In this context, Sanz-Velasco and Magnusson (2004) have illustrated empirically that opportunity and venture are actually developed in parallel, and that the process is iterative and interactive. This description aligns with those who depict the opportunity as iteratively developed (Bhave, 1994), or use the term “opportunity” in existing firms as well (Christensen, 1989; Wiklund, 1998).

Prior knowledge and opportunities

Prior knowledge has been identified as an important component of creativity (Shepherd and DeTienne, 2005). In addition, prior knowledge might also explain why some individuals, and not others, discover (or create and develop) opportunities. Nelson (1990) has argued that the centralisation of new technology development leads to under-identification of opportunities because no central agent can identify all possible entrepreneurial opportunities. Different people discover various opportunities in a given technological development because their prior knowledge differs. Each person’s individual prior knowledge enables this person, but not others, to recognise certain opportunities (Venkataraman, 1997). Fiet (1996) and von Hippel (1994) have pointed out that people notice information that is related to their existing knowledge; moreover, new information often needs to be complemented with prior knowledge to be useful (Shane and Venkataraman, 2000). Shane (2000) has shown that entrepreneurs discover opportunities that are related to their prior knowledge. Such prior knowledge can be categorised into three dimensions:

- (1) *Markets*: such as information about supplier relationships, sales techniques, or capital equipment requirements that differ across markets (von Hippel, 1988).
- (2) *Ways to serve markets*: such as a new technology that might change a production process, allow the creation of a new product, provide a new method

of distribution, permit a new material to be used, generate new sources of supply, or make possible new ways of organising (Schumpeter, 1934).

- (3) *Customer problems*: the solving of which enables customers to gain optimal benefits from the innovation.

According to Shane (2000), potential entrepreneurs should discover opportunities in what they know rather than what is popular with other entrepreneurs.

Resources and opportunities

It has been proposed that entrepreneurs pursue opportunities regardless of the resources they currently control (Stevenson and Jarillo, 1990). However, other approaches have perceived an important role for resources in the pursuit of opportunities. For example, Alvarez and Busenitz (2001) have suggested that opportunities surface when actors have distinctive insights into the value of certain resources or a combination of resources that might be bundled in new ways. Two of the more important resources in entrepreneurial opportunity are technology and personnel. Technology can be defined as the tools, devices, and knowledge that mediate inputs and outputs and/or that create new products or services (Tushman and Anderson, 1986). Increasingly, new ventures are based upon the use of technology to exploit entrepreneurial opportunities. Indeed, the proliferation of such ventures has given rise to the notion of “new technology-based firms” (Bollinger *et al.*, 1983). However, changing technology can have a significant cost impact on a firm, and adding new technologies produces coordination costs (Granstrand and Sjölander, 1990). A major technology change also encompasses major changes to core competencies (Prahalad and Hamel, 1990). These effects on costs and competencies must be taken into account in the development of a given opportunity.

With respect to personnel resources, it has been observed that many managers (as distinct from entrepreneurs) feel a responsibility to employ the resources they have already acquired; they therefore try to maintain their personnel and apply existing technology (Stevenson and Gumpert, 1985). In contrast, entrepreneurs are depicted as being opportunistic (Stevenson and Gumpert, 1985) and it has been suggested that their ventures are likely to be experimental in developing and/or changing their resources (Mosakowski, 2002). Positioning the term “opportunism” with respect to its use in transaction cost economics (Williamson, 1975); what is here envisaged is an individual pursuing an unclear opportunity because of access to vast amounts of resources in an industry where she lacks prior knowledge. This resembles the opportunist technical entrepreneur typology (Jones-Evans, 1995). According to such views, entrepreneurs might be expected to reduce personnel and change technology if circumstances make this necessary or possible, whereas managers are typically reluctant to take such actions.

Summary of conceptual framework

According to the model of “opportunity discovery”, the entrepreneurial process begins with the discovery of an opportunity (involving recognition and surprise) at a particular point in time, partly due to the possession of pre-existing individual knowledge. Furthermore, according to this model it is argued that the discovery of the opportunity has the potential to provide a cognitive objective that guides the

entrepreneur. The model implies that perception comes before action. In contrast, the model of “opportunity development” posits that opportunities are created in a process that is iterative and interactive. This implies that initial perceptions of an opportunity are rudimentary and in need of development. Moreover, this model posits that entrepreneurs act before they have a comprehensive perception of an opportunity in that they immediately turn their attention to enactment and effectuation.

Prior knowledge has been shown empirically to influence who discovers an opportunity. Such prior knowledge exists in three important areas:

- (1) markets;
- (2) ways to serve markets; and
- (3) customer problems.

Because differences in prior knowledge are inevitable, no two individuals perceive exactly the same opportunity. Entrepreneurs are likely to change their resources, such as reducing personnel and/or changing technology, if circumstances make this necessary and feasible; in contrast, managers are typically reluctant to take such actions. Drawing on this conceptual framework it is possible to propose a set of working criteria that enable the identification of an “opportunity”. For the purposes of this study it is proposed that an “opportunity” must include the following elements:

- *offer*: an opportunity involves a definite offer to the customer;
- *customer*: an opportunity envisages a definite customer segment;
- *value*: an opportunity creates definite value;
- *revenue model*: an opportunity has a definite revenue model; and
- *technology*: an opportunity is accomplished through technology.

Research methodology

Setting

The empirical study presented in this qualitative investigation of “opportunity”, conducted during the autumn of 2002, is the Swedish mobile internet industry. This industry utilises technology that enables wireless transmission of audio, data, and video for mobile users. It thus involves two converging technologies: mobile telephony and data communication. The industry consists of enabling technologies, mobile network access providers, mobile applications and services, content providers and professional services. The industry took off in the late 1990s and experienced a boom around 2000. During the main entry period in 1998-2000, 155 new ventures entered the Swedish market and no exits occurred. During 2003-2004, the corresponding figures were 23 and 23, with almost no venture capital available. It is thus apparent that the industry experienced a boom until 2000 (with a focus on technology), followed by a phase of withdrawal of venture capital (with a focus on the market and the viability of the opportunities being pursued). These latter (adverse) developments were occurring at the time of this empirical study.

Respondents

In all, 20 start-ups were selected from a set of 112 ventures in the industry. Interviews were conducted with founders and managing directors representing these ventures.

Table I outlines the ventures. As can be seen, 17 of the 20 ventures were founded during 1998-2000. Many had adverse outcomes.

Procedure

Preliminary research on the 20 selected ventures was conducted via the internet. The ventures were then contacted and informed of the goals of the study. Three researchers conducted interviews with the respondents from the 20 ventures. All the interviews were semi-structured and used a common methodology. The interviews were conducted on-site, and lasted approximately one hour. The focus of the interviews was entrepreneurial opportunity and the questions were as follows:

- (1) What did you first see as the opportunity to make a profit (entrepreneurial opportunity)?
- (2) Have you changed your perception of the opportunity?
- (3) If you have changed your perception of the opportunity over time, what has led to this change?

Interviews were tape-recorded before being transcribed no later than the following day. Notes were also taken during the interview, and these were used to complement the transcripts. To strengthen validity, the following steps were taken:

- (1) The three researchers conducted the first three interviews together to ensure a common approach.
- (2) Questions were asked in the same order in all interviews.
- (3) During the interviews the respondents were asked to provide examples to illustrate their statements, and their statements were validated against secondary sources afterwards.
- (4) Written transcripts were e-mailed to the respondents within a week, and their comments were incorporated as respondent validation.

Analysis

Qualitative content analysis was undertaken according to the framework shown in Table II (Weber, 1985). In particular, the criteria of an "opportunity" (see above) were carefully applied. To improve reliability, each of the researchers reviewed this step individually. Divergent opinions among researchers were resolved by discussion until there was agreement.

Table III lists the ventures that experienced a developed opportunity over time. The opportunity was first identified (as shown in Table II), and the author then evaluated whether there had been a change in any of the elements constituting the opportunity. In addition, the prior knowledge and resources that conditioned these changes were also identified.

Results

Initial perceptions of opportunities

Table II shows the initial opportunities with notes in terms of the criteria listed above ("offer", "customer", "value", revenue model", and "technology"). Notes in italics indicate that the responses were judged to be non-specific or unclear. Of the 20 ventures examined, 16 pointed out what technology they intended to use and 15

Abbreviation	Venture name	Business segment	Status in June 2003	Year of foundation	Number of employees	2002 Revenue (kSEK)	Profit/loss (kSEK)
A	Mgage Systems AB	Application developer and provider		2000	7	4,615	neg 958
B	Bassiationsbolaget Kev AB	Network technologies		2000	No data	No data	No data
C	Satsafe MLS AB	Application developer and provider	Bankrupt	1998	No data	No data	No data
D	Exensius AB	Application developer and provider		2000	13	7,237	neg 438
E	Halebop AB	Portals		2000	0	0	neg 18
F	Digiscope AB	Consultants		1998	3	2,229	neg 4,257
G	It's Alive Mobile Games AB	Application developer and provider		2000	10	3,151	neg 4,742
H	Bozoka.com Sweden AB	Application developer and provider		1999	17	1,448	neg 8,453
I	UniteAll Mobile AB	Application developer and provider		1993	3	1,449	neg 1,980
J	Picofun AB	Application developer and provider		1999	27	3,458	neg 30,807
K	Mittere Wireless Solutions AB	Consultants		2000	2	560	neg 2,303
L	PowerNet AB	Network technologies	Filed for bankruptcy	1998	No data	No data	No data
M	eMunity AB	Portals		1999	2	2,551	neg 1,005
N	Mobyson AB	Mobile terminals	Fusioned December, 2001	2000			
O	Scandinavian Wireless Intelligence AB	Mobile middleware	Filed for bankruptcy	2000	No data	No data	No data
P	Rapid Information AB	Application developer and provider		1995	2	1,828	+ 115
Q	Newmad Technologies AB	Mobile terminals		2001	0	1,381	neg 41
R	EHAND Tech AB (XcelleNet AB)	Application developer and provider		1999	16	3,857	neg 13,253
S	Melody Interactive Solutions AB	Mobile middleware		1998	7	30,809	neg 73,768
T	Icomera AB	Application developer and provider		1999	12	857	neg 6,100

Note: 1 € is approximately 9 SEK

Source: Affärsdata

Table I.
Presentation of ventures

Table II.
Initial entrepreneurial
opportunities

Venture	Offer	Customer	Value	Revenue model	Technological means	Freq	Opportunity developed?
A	Chat		<i>Fun</i>		Mobile messaging	2	No
B	Base stations	<i>Existing relations</i>	Base station for 3G			2	No
C	Security for mobile assets		Safety	Subscription, SLA and traffic revenue	Transponder, GPS and Internet	4	Yes
D	Financial data in real time	Banks and financial institutions	Time = money Better business processes	<i>Sell to customers</i>	<i>Wireless applications</i>	3	Yes
E	Mobile portal and marketing	<i>Consumers</i>	<i>Fun and marketing channel</i>		Mobile phones and internet	2	Yes
F	<i>From strategy to details</i>	<i>Businesses</i>	<i>Customers' relations</i>		Digital TV, mobile phones, internet	1	Yes
G	Botfighter (a game)	MNOs	<i>Fun</i>	Licence fee, SLA and traffic revenue	Mobile technology	4	Yes
H		MNOs and media companies	Time = money Mobility is freedom		Delivery of mobile formats	3	Yes
I	Fast conference telephony	MNOs	Time = money Mobility is freedom		Mobile telephony	4	Yes
J	Mobile games		<i>Fun</i>	Revenue share – MNO	Mobile, such as I-mode	3	Yes
K	Entertainment Consulting solutions	<i>Communication firms</i>				1	Yes
L	Internet access	SMEs in Stockholm	Internet access	Monthly fee	Wireless: own network	5	Yes

(continued)

Venture	Offer	Customer	Value	Revenue model	Technological means	Freq	Opportunity developed?
M	Mobile market communication	<i>Businesses</i>	Ads to mobile users		Mobile phones	3	No
N	Other mobile services than voice				Mobile phones	2	Yes
O	Bookings in travel industry			Volume-based revenue		2	No
P	Services and software	<i>Businesses</i>	Time = money Mobility is freedom	Sell via partner or directly	Wireless technology	4	Yes
Q		The firm's owners	Integration of behaviour and technique		Mobile infomatics	3	Yes
R	<i>Application to specification</i>				Wireless: hand-computers	1	Yes
S	<i>Useful mobile applications</i>	MNOs and e-traders	<i>Better communication</i>		Mobile technology	2	Yes
T	Mobile information	Power line companies	Required information at lower cost		Real time via three parallel GSM-cards	4	
Freq.	15	8	10	6	16		

Notes: Freq = frequency; MNO = mobile network operator; SME = small- and medium-sized enterprise; SLA = service and licensing agreement. Notes in italics indicate that the responses were judged to be non-specific or unclear

Table III.
Development of
opportunities: prior
knowledge and resources
influence

Venture	Opportunity elements developed	Brief background	Conditioning factors: prior knowledge and resources
C	Offer Revenue model Customer	Market interaction showed that customers requested an extended offer, which also resulted in more sources of income – an expanded and efficient revenue model	Conditioning factors: prior knowledge and resources
D	Customer	The entrepreneurs were surfing on the wireless technology trend and building on their unique knowledge. The dip of the stock market meant that new customer segments were needed and consequently identified, such as MNOs	<i>Zeitgeist</i> Prior knowledge
E	Offer Customer	IT-bubble blew up, the advertising market died and customers were slow to adopt. In response, a cash card was introduced and the business segment was stopped	<i>Zeitgeist</i>
F	Customer	Due to difficulties with the first customer segment, another segment was identified, so there was a shift in target customers	
G	Offer	The entrepreneurs were thinking that the product would sell itself. But there was resistance from the MNOs, which meant that short-term cash flow was needed. This turned focus to offering more complete solutions to MNOs, including launch plans and media coverage	Resources
H	Offer Customer Value	The work built on prior experience and the entrepreneurs thought media companies would do their own distribution. The slump forced a focus on short-term cash flow. Two customer segments were dropped, and more customer-specific solutions needed. Mobility was added value	<i>Zeitgeist</i> Prior knowledge Resources
I	Customer	Mobile business users did not fit internal service structures. There were many mobile functions on the market but few real services. It was much resistance from MNOs, which were also slow to react. Hence they tried to sell directly to businesses, as end customers	Resources
J	Offer Customer Technology	A Japanese development was anticipated, but did not occur in Sweden. End customers were too expensive to reach, and venture capitalists pushed for SMS-based services. The entrepreneurs therefore turned their focus to operators instead of end customers and changed the offer towards SMS services	
K	Offer Customer Revenue model	The founders felt the boom and had unique knowledge, which they thought would render profits in the future. Many business model changes were under way, for instance acting as wireless ASP or as consultants, and the revenue model was substantially developed. The opportunity was developed to maintain the personnel, but the market also drove changes	<i>Zeitgeist</i> Prior knowledge Resources

(continued)

Venture	Opportunity elements developed	Brief background	Conditioning factors: prior knowledge and resources
L	Offer Customer Technology	The entrepreneurs wanted to capture the strong technology trend. Surf zones were established as a marketing tool, hoping it would bring attention. They wanted to develop total customer solutions, but it emerged that rural customers really wanted their service, and therefore became a target segment. There was a technology change and the growth expectation was lowered. The feeling is that limits on personnel have restricted growth. A Japanese development was anticipated, but did not occur in Sweden. In the face of this, resource constraints forced a change. The entrepreneurs dropped the service offer and turned to low-price voice niche segment, so there was a substantial technology change. The world was expected to become more mobile, therefore needing new services. The boom meant money was available for anything. Customers were increasingly seen as able and willing to adopt new mobile services. Then came a slump. The entrepreneurs have increasingly focused on real needs, unlike nice functions. A business model not needing VC was required, since VC disappeared.	Resources
N	Offer Customer Technology	The entrepreneurs put faith in their own unique competence. The market forced a short-term focus, so that financiers and VC imposed changes in the business model. There was consequently an increased focus on consulting and short-term usability of service.	Resources
P	Offer	The entrepreneurs attempted to take advantage of the wireless communication as well as hand-computer trend. But customers seemed more prepared to pay for products than consulting, which meant that a new product platform was made to be licensed.	<i>Zeitgeist</i>
Q	Offer	They attempted to respond to the WAP trend and build useful applications, but customers seemed only to want and adopt existing technology. They therefore turned to building an infrastructure component – a WAP gateway. A new product was developed, which was actually two products combined.	Prior knowledge resources
R	Offer Technology	As the first offer failed, MNOs were viewed as customers. It meant a technology change, trying to leverage on this prior technology knowledge ever since, while maintaining personnel. Lack of resources gave search for new customers. This finally gave the train operators, providing passengers with mobile high-quality wireless access. A revenue model with a fixed price was eventually reached.	
S	Offer		
T	Offer Customer Value Revenue model Technology		Prior knowledge Resources

Notes: MNO = mobile network operator; ASP = application service provider; VC = venture capital/capitalist; WAP = wireless application protocol

described their offers clearly. Only eight were specific about the criterion of “customer” and only six were specific about their “revenue model”. This suggested that these aspects of the opportunity were not as important in the early stages as the “offer” and the “technology”. Moreover, about half of the respondents identified only one or two of the five criteria. The overall impression was that many ventures had limited perceptions of “opportunity” at this early stage. The incompleteness of these initial perceptions of opportunities was also apparent in the relatively vague words used by the respondents to describe their opportunities. The following examples illustrate this. A respondent describing Venture N used the following non-specific words to describe the “opportunity”:

So it was from that perspective ... departing from what happened in Japan ... to see opportunities to sell other services than voice.

A respondent talking about Venture O specified neither the “customer” nor the “value” of the opportunity:

Primarily volume-based transactional revenue. The travel industry generates very many transactions and we had early identified very large quantities pertaining to bookings and airline tickets.

A respondent seemed to suggest that Venture R had been launched largely on the basis of its novelty alone:

The idea about the company was that we had seen the second version of Palm Pilot Pro sometime around 1998. And we thought that we could do something funny with hand-computers ... that is how advanced the business model was from the start.

Opportunity development

Table III displays 16 opportunities that were developed over time. The last column in the table provides notes on the influence of prior knowledge and resources. In addition, this column takes note of what might be termed the “*Zeitgeist* factor” in the development of the opportunity. “*Zeitgeist*” refers to the “spirit of the times”; the tastes and outlooks that characterise a given time (Schnaars, 1989). In all, 16 of the 20 initial opportunities were developed over time. The “customer” element was developed in ten cases, and the “technology” element was developed in five. The “offer” was developed in 13 of the 16 cases. In terms of prior knowledge, several of the respondents referred to their own backgrounds. For example, commenting on Venture D one respondent observed:

The business opportunity we saw in front of us ... we had worked with computers and IT for quite a long time.

Other respondents used their experience to develop the opportunity. For example, a respondent commenting on Venture H noted:

I have worked with media investments before ... so we could make a realistic estimate of what it would cost. Such a thing could not be financed, so we abandoned that track quite early.

With respect to the “*Zeitgeist*” of the times, one respondent commenting on Venture K observed:

What really started the business ... there was a big boom around mobile internet ... it was enough of a boom to allow the founding of a consulting company.

However, “*Zeitgeist*” can also have adverse effects. Discussing Venture E, one respondent noted:

The reason for our change ... the whole mobile internet bubble built upon the fact that the only revenue you had was advertisement ... and then all advertisers withdrew.

With respect to “resources”, Venture K’s personnel had an effect on the development of its opportunity the respondent noted:

The whole time, the change in the business was a way to find a business model that would support existing personnel.

The collapse of the venture capital market had an impact on Venture B’s opportunity development:

Venture capital has changed. I started two years ago, just when venture capital started to dry up. So everything has been great but it is impossible to acquire venture capital.

Due to resource constraints, Venture J was driven by operators and investors to look for other customers:

... the change to new services was due to demands from the operators, and in particular it was requested by the venture capitalists.

Discussion

Opportunity discovery or opportunity development?

The ventures examined here ranged from rudimentary opportunities to “full-blown” opportunities, but most initial perceptions of opportunity were limited and in need of further development. As Gartner *et al.* (2003) observed, opportunities are “. . . the result of what individuals do, rather than the result of what they see”. Moreover, in view of the generally poor performance of these ventures, it would seem that the rudimentary opportunities perceived by these respondents, as illustrated by the quotations, were insufficient for success. Although it should be acknowledged that the particular context of this industry played a part in the failure of many of these ventures. It is apparent that entrepreneurs and venture capitalists might do well to launch ventures on the basis of more comprehensive opportunity perceptions than was often the case in the examples considered here.

In terms of the criteria for an “opportunity”, it is apparent that “technology” was initially more in focus than either the “customer” or the “revenue model”. Although the last two elements were subsequently developed, it is nevertheless apparent that market-related elements (such as “customer” or “revenue model”) were not the entrepreneurs’ greatest concern. Indeed, it could be argued that if, they had been more concerned with market matters (rather than “technology”) their overall results might have been better. In this context it is of interest that the “offer” was one of the most frequently developed elements from the initial perception of opportunity; being later developed in 13 of the 16 cases. It would seem that the industry focus was initially on technology, next on the market, and finally on the resources. Although these perceptions of “opportunity” might well reflect the “*Zeitgeist*” of this particular

industry, a fair interpretation would be that some degree of “myopia” affected these entrepreneurs, and that entrepreneurs and venture capitalists in this industry need to take greater heed of the customer and the appropriation elements required to bring a venture to full fruition.

In summary, the industry context has clearly played large part in determining the question of “discovery” or “development” in the cases examined here. Nevertheless, the initial conceptualisation of “opportunity discovery” seems to have been focused on the “offer”, whereas, over time, other factors (such as the market) assumed greater importance. These latter factors seem to fit the conceptualisation of “opportunity development” better than that of “opportunity discovery”.

Prior knowledge or opportunism?

Table II indicates that no two entrepreneurs were close to perceiving the same opportunity, despite being in the same industry. This seems to support an extreme interpretation of idiosyncratic information (Shane, 2000). The results indicate substantial variation in the quality of the opportunities, thus implying a need to control for the quality of the opportunities when comparing entrepreneurs with other groups (see Kaish and Gilad, 1991). In terms of the three areas of prior knowledge noted above (markets, ways to serve markets, and customer problems), the findings indicated a focus on ways to serve markets in terms of technology and offer rather than on customer problems. This is in accordance with the findings discussed above that these entrepreneurs appear to have been less market-oriented. For example, the entrepreneurs of Venture T persistently attempted to leverage prior technological knowledge and finally attained some success when they complemented this with a relevant customer problem. This instance is an example of how other ventures might have been more experimental and market-oriented while still maintaining a technology focus. Moreover, prior knowledge, like opportunism, seems to have influenced opportunity emergence and development. But the “*Zeitgeist* factor” should not be underestimated in this industry. As one respondent observed:

Venture capitalists threw money after you if you mentioned the phrase “mobile internet”.

There were obviously many possibilities for those who opportunistically responded to the strong *Zeitgeist* that was apparent in the industry (Bhidé, 2000). Such opportunist entrepreneurs contradict the dictum that potential entrepreneurs should try to discover opportunities in what they know rather than what is popular with other entrepreneurs (Shane, 2000). Although there was widespread evidence of prior knowledge being utilised, opportunism was prevalent in both opportunity discovery and opportunity development in the cases examined in the present study. It would seem that that potential financial rewards in this industry provided motivation to identify opportunities for individuals who had little prior knowledge of customer problems (Shepherd and DeTienne, 2005).

Resource constraints

Resources influence both the emergence and development of opportunities. Some entrepreneurs ruthlessly change their resource base and opportunistically adapt (Bhidé, 2000). However, in the present study, the preservation of personnel was a main objective which implies that the entrepreneurs demonstrated behaviour that has more

commonly been associated with managers (Stevenson and Gumpert, 1985). In addition, the decline in available venture capital caused problems for many entrepreneurs including apparently viable opportunities.

It has been suggested that the most suitable learning models for entrepreneurial activity in small enterprises are dynamic “learning-by-doing” models whereby returns on efforts are highest in areas of prior knowledge (Deakins and Freel, 1998). Furthermore, the management of a small enterprise can be depicted as a turbulent, non-linear process that is characterised by salient “learning events” rather than being a planned development; it thus resembles “effectuation” (as described above). Entrepreneurs’ learning activities thus emerge from reactive (or perhaps proactive) responses to opportunities and problems (Young and Sexton, 1997) – insight requires action (Gartner *et al.*, 2003, p. 124). Indeed, the management and resolution of discontinuous events has been identified as a significant learning mechanism for entrepreneurs (Cope and Watts, 2000). Deakins and Freel (1998) have emphasised the need to recognise and act on an opportunity that arises out of experience and Rae (2000) has observed that learning within entrepreneurship involves learning how to recognise and act on opportunities. It has also been stated that learning results from the experience of dealing with customers and product development (Boussouara and Deakins, 1999). Moreover, the ability to learn determines whether entrepreneurs can use such experiences and prior knowledge to maximise opportunities and to assemble the needed resources (Deakins and Freel, 1998). This perspective of learning is in accordance with the concepts being advanced in the present study – whereby opportunity development is posited as a learning process under the influence of prior knowledge and resources.

Conclusions, limitations, and implications

This study of the Swedish mobile internet industry has provided evidence that leads to interesting conclusions with respect to:

- prior knowledge and entrepreneurial opportunity;
- resources and entrepreneurial opportunity; and
- the conceptualisation of “opportunity” in terms of “opportunity discovery” and/or “opportunity development”.

First, the study has provided evidence that both prior knowledge and opportunism (*vis-à-vis* an industry “*Zeitgeist*”) influenced who discovered an opportunity and the subsequent development of that opportunity. The study has demonstrated that most prior knowledge among respondents consisted of knowledge of ways to serve the market rather than knowledge of customer problems. The study also demonstrated a prevalence of rather rudimentary perceptions of opportunity. Taken together, the study concludes that more market interaction on the part of the entrepreneurs, such as sales activities in a given customer segment, could have facilitated a more rapid and effective development of the opportunities that were perceived. Moreover, in the context of the flight of venture capital that characterised this industry in the early years of the present decade, more market interaction could have improved the long-term future of the firms examined here. For their part, venture capitalists could avoid excessively opportunistic entrepreneurs by discriminating for evidence of prior knowledge of customer problems. Given that entrepreneurs who lack such knowledge

are more likely to be motivated by potential financial rewards than by a pragmatic assessment of real market needs. Moreover, the study has indicated that no two entrepreneurs see exactly the same opportunity which highlights the importance of idiosyncratic information in assessing prior knowledge.

Second, the study has also found that resources influence opportunities and their development. Because opportunities are developed through the venture process, perceptions of opportunity are always in a state of flux. The inherent difficulty of describing the content of a particular opportunity at a given point in time creates obvious problems for attracting resources. The entrepreneur thus faces a challenge in simultaneously developing the opportunity and maintaining fruitful relations with resource holders. In these circumstances, resource holders must accept that the opportunity might need substantial development. With respect to resources, it has also been found in the present study that entrepreneurs are not necessarily opportunistic (as has been previously posited), but can display loyalty to their employees in managing important human resources.

Third, the study has found that initial perceptions of opportunities were often rudimentary, and that most opportunities were developed – both before and after venture foundation. This provides evidence for the conceptualisation of “opportunity” in terms of “opportunity development”. Moreover, the poor performance of many of the ventures indicates the adverse effects of limited perceptions of opportunities, and provides evidence for the contention that it is desirable for entrepreneurs and venture capitalists to have more comprehensive perceptions of an opportunity, if possible, before launching a venture. That said, it is conceded that the extraordinary context of this particular industry was an important factor in explaining the initial orientation of the entrepreneurs, which tended to focus on the offer rather than the customers. In many ways, the opportunities examined in the present study reflected the inherent phases of this particular industry; an early focus on technology, followed by a focus on the market, culminating in concerns about resource constraints. Nevertheless, despite the peculiarities of this industry, the tendency to develop the customer rather than the technology is in accordance with the conceptualisation of “opportunity development”.

In summary, the conceptualisation of opportunity in terms of “opportunity discovery” seems to align with initial cognitive processes in situations of low risk. In these circumstances, entrepreneurs tend to focus on the offer rather than on potential customers. In contrast, in conditions of uncertainty in which market factors are more important, the conception of opportunity in terms of “opportunity development” seems to be more appropriate because it takes into account behavioural aspects and processes under the influence of prior knowledge, resources, and context. It is therefore suggested that a greater emphasis on the conceptualisation of opportunity in terms of “opportunity development” would provide an improved basis for entrepreneurial learning and adaptation. As hinted through the article, the main limitation is arguably the research setting. The empirical work is conducted in one industry during a turbulent period, which limits the generalisability of the findings, since industries differ regarding the availability of opportunities (Klevorick *et al.*, 1995).

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