Corporate entrepreneurship and innovation part 1: the missing link

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Abstract

Purpose – To examine the literature on corporate entrepreneurship and innovation and to develop a combined definition of these two terms. Moreover, the literature is used to construct a holistic model that seeks to explain the links between corporate entrepreneurial activity and the innovation process.

Design/methodology/approach – A number of published works on entrepreneurship and innovation are critiqued. The findings from this literature review are used to develop a framework illustrating the relationships between the corporate entrepreneur and the innovation process.

Findings – The paper presents a combined definition of corporate entrepreneurship and innovation and, from the literature review, concludes that previous models on entrepreneurship and innovation are fragmented because there is little exploration on the relationships and dynamics between these two factors. A framework of corporate entrepreneurship and innovation is constructed by synthesising the information gathered from previous literature. This model shows that there are missing links between the entrepreneur and the innovation process. The paper discusses three factors that may explain both the dynamics and the relationships between the entrepreneur and the innovation process. These are entrepreneurial attitudes, vision and actions.

Originality/value – This paper fulfils an identified gap in the literature, namely the lack of investigation into the links between the corporate entrepreneur and the innovation process, and suggests three factors that could be used to explain this gap. Part 2 of this paper will present a new holistic model of corporate entrepreneurship and innovation that illustrates the relationships between these two areas in more detail.

Keywords Entrepreneurialism, Innovation, Attitudes

Paper type Conceptual paper

Introduction

The need to understand corporate entrepreneurship has been gaining in importance (Dess et al., 2003; Stevenson and Jarillo, 1990) and has resulted in a number of entrepreneurship frameworks being presented in the literature (Burgelman, 1984; Covin and Slevin, 1991; Pinchot, 1985). Although the scholars who have addressed corporate entrepreneurship have made significant contributions to theory development, there is still scope for a more focused exploration, particularly as there is a growing need for corporate entrepreneurship and innovation within organisations (Hornsby et al., 2002; Hornsby et al., 1993; Ireland et al., 2001; Kuratko et al., 1993; Sexton and Bowman-Upton, 1991; Zahra, 1995). Further research in these two areas has become problematic due to a general lack of consensus surrounding an agreed upon meaning of both concepts (Morris et al., 1994) and the key internal factors that...
stimulate them (Hornsby et al., 2002). Earlier frameworks have focused on either entrepreneurship or innovation as independent processes, thereby limiting their application and utility (Baum et al., 2001; Chesbrough, 2003; Cunningham and Lischeron, 1991; Dooley and O'Sullivan, 2001; Jin, 2000). Thus, there has been very little comment in the literature on the relationships between entrepreneurship and innovation.

The aim of this paper, therefore, is to present a critical evaluation of the corporate entrepreneurship and innovation literature and to construct a synthesised framework illustrating the current view of these two areas. The model shows that there is a gap between entrepreneurship and innovation. This paper suggests three elements that can fill this gap, namely entrepreneurial attitudes, vision and activities. In part 2, these three elements are explored in more detail and a new model of entrepreneurship is presented.

The next two sections define corporate entrepreneurship and innovation and examine the variables and relationships from the literature that underpin these areas. The paper then culminates in the construction of a framework that has been developed by synthesising the literature on entrepreneurship and innovation. The model shows that there is a gap between these two concepts and presents some suggestions as to which elements should be utilised to fill this gap.

What is corporate entrepreneurship and innovation?
Researchers and practitioners have attempted to define corporate entrepreneurship and innovation in many different ways (Bessant, 2003; Kirby, 2003; Zahra, 1996). There appears, however, to be little consensus surrounding what constitutes entrepreneurial and innovative activity. For example, Chell et al. (1991, p. 1) states:

> The problem of identification of an entrepreneur has been confounded by the fact that there is still no standard, universally accepted definition of entrepreneurship.

This section reviews some of the most influential literature, from both areas, in order to provide clearer definitions of these two terms.

Defining corporate entrepreneurship
A number of authors have emphasised entrepreneurship as the primary act underpinning innovation (Amit et al., 1993; Drucker, 1985b; McGrath, 1996; Stevenson and Jarillo, 1990), which also resonates with Schumpeter’s (1961) view of entrepreneurship, as the primary catalyst for innovation. All of these views are, however, concerned almost exclusively with entrepreneurial activity as a radical change mechanism. Evidence suggests however that this might not always be the case (Afuah, 2003; Tidd et al., 2001).

In contrast, corporate entrepreneurship is held to promote entrepreneurial behaviours within an organisation (Echols and Neck, 1998). It uses the fundamentals of management, while adopting a behavioural style that challenges bureaucracy and encourages innovation (Barringer and Bluedorn, 1999). It is also responsible for stimulating innovation within the organisation through the examination of potential new opportunities, resource acquisition, implementation, exploitation and commercialisation of the new products or services (Guth and Ginsberg, 1990; Kuratko et al., 1990; Sathe, 1989; Stopford and Baden-Fuller, 1994;
Thornberry, 2003). In addition, Zahra (1991, 1995) states that corporate entrepreneurship also includes various attitudes and actions that enhance a company’s ability to take risks, seize opportunities and innovate.

According to Leibenstein (1968, p. 73), entrepreneurship can be defined as:

The activities necessary to create or carry on an enterprise where not all the markets are well established or clearly defined and/or in which the relevant parts of the production function are not completely known.

Leibenstein further contends that an entrepreneur undertakes one or more of the following activities:

The entrepreneur:
- organises and puts in place the appropriate resources required to produce and market the new product or service;
- co-ordinates contractual agreements between different parties such as the firm and its employees or suppliers;
- arranges an appropriate organisational structure and culture in order to develop and produce new products and services;
- responds to market deficiencies by supplying resources for which there is no market; and
- connects buyers and sellers and/or different geographical markets together.

From the above discussion corporate entrepreneurship can be defined as the effort of promoting innovation from an internal organisational perspective, through the assessment of potential new opportunities, alignment of resources, exploitation and commercialisation of said opportunities (see Figure 1 for explicit links). It is important to note that corporate entrepreneurship can be used interchangeably with intrapreneurship.

Figure 1. Corporate entrepreneurship

- New Opportunities, 
- Resource Acquisition, 
- Implementation, 
- Exploitation and 
- Commercialisation of Opportunities
Defining innovation

Various definitions have been developed to explain innovation, and as a result the term has gained greater ambiguity (Garcia and Calantone, 2002). Examination of the innovation literature confirms that there is enormous diversity in views and approaches to what actually constitutes innovative activity, and also highlights some of the confusion that exists within the discipline itself. Confusion seems to stem from the fact that many definitions introduce peripheral concepts, which may deflect attention from the core components of innovation and make its application difficult. For example, both Cannon (1993) and Gurteen (1998) introduce paradigmatic change and creative thinking. While Rogers (1995) concentrates on perception, Henderson et al. (1996) feature invention, and Kooit and Weihrich (1990) and Zahra (1995) put forward definitions that highlight marketing and entrepreneurial philosophies.

A number of process models have been developed in the literature suggesting that innovation consists of a variety of different phases: idea generation, research design and development, prototype production, manufacturing, marketing and sales (Dooley and O’Sullivan, 2001; Knox, 2002; Poolton and Ismail, 2000; Rothwell, 1994). However, theorists have suggested that there is more to innovation than the process (Amabile, 1996; Couger, 1995; Rhodes, 1961). Considerations must also be given to the product so that organisations can evaluate their success (or failure) (Bessant, 2003; Tidd et al., 2001; von Stamm, 2003). In fact, the most important, as well as consistent, factors to emanate from the innovation literature focus on the product; that is, new ideas and the potential for improvement through change. New ideas can be placed on a novelty continuum. Heany (1983) suggests that the least novel and risky form of innovation is to incrementally change the style of a product. This tends to be predictable and the effect on the market is likely to be slight. In contrast, at the other end of the continuum, major innovation is held to radically influence the market place. In addition, major innovations have the potential to create new markets and new industries. This in turn can place considerable strain on all the functional areas within an organisation, and can be highly risky and uncertain (Brown, 1992; Clegg et al., 2002; von Stamm, 2003). Between these two points in the continuum, Heany (1983) specifies four other types of innovation: product line extensions, product improvements, new products for the current market, and new products for another established market in which the vendor is currently not involved (see Table I). According to Drucker (1985b), Heany’s products of innovation are associated with wealth production for the organisation, which is a form of added value.

The above factors have been categorised into key themes in order to maintain a simple definition of innovation. Consequently, innovation can be defined as a process that provides added value and a degree of novelty to the organisation and its suppliers and customers through the development of new procedures, solutions, products and services as well as new methods of commercialisation (Covin and Slevin, 1991; Knox, 2002; Lumpkin and Dess, 1996) (see Figure 2).

Combining entrepreneurship and innovation

In this brief review, corporate entrepreneurship and innovation have been defined. What has become clear, however, is that without the presence of some form of entrepreneurial activity to exploit opportunities as they arise within organisations, innovation remains little more than an aspirational, rather than a tangible destination
In a business setting, it appears that the process of endowing resources with new wealth-production capacity [innovation] is central to any conceptualisation of entrepreneurship.

(Pinchot, 1985; Schumpeter, 1961; Thornberry, 2001; Zahra, 1995). Amit et al. (1993, p. 816) therefore state that the two concepts must be linked together:

In a business setting, it appears that the process of endowing resources with new wealth-production capacity [innovation] is central to any conceptualisation of entrepreneurship.
A number of authors have argued that there are different types of innovation. For example, Paulson Gjerde et al. (2002, p. 1268) suggest that innovation can range from incremental to frontier:

BMW may be viewed as a frontier innovator, choosing not to introduce a new model until it is very different from the previous models and is at the leading edge of the technology frontier. In comparison, Japanese automobile manufacturers may be viewed as incremental innovators, frequently introducing new models that are only slightly different from the previous ones and do not incorporate all possible technological advances.

Kirton (2003) believes that people solve problems and develop solutions in different ways. He suggests a continuum of thinking styles ranging from adaption to innovation (see Table II). Many new innovations have been created through adaption. For example, the word processor is a combination of three existing instruments: the typewriter, the computer and a display screen (Drucker, 1985a). Likewise, the internet has been developed from the computer and the telephone (McFadzean, 2003). Another form of adaption is what Drucker (1985a, p. 15) calls “creative imitation”:

Creative imitation is a contradiction in terms. What is “creative” must surely be “original.” If there is one thing imitation is not, it is being “original.” Yet the term fits, it describes a strategy which is “imitation” in its substance. Here, the entrepreneur does something somebody else has already done. It is “creative” because the entrepreneur who applies this strategy understands what the innovation represents better than the people who made the innovation.

### Table II

<table>
<thead>
<tr>
<th>Adaptors</th>
<th>Innovators</th>
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<tbody>
<tr>
<td>In problem defining:</td>
<td></td>
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<tr>
<td>Adaptors tend to accept the problems as defined by consensus, accepting generally agreed constraints. Early resolution of problems, limiting disruption and immediate increased efficiency are their more important considerations</td>
<td>Innovators tend to reject the generally accepted perception of problems and redefine them. Their view of the problem may be hard to get across. They seem less concerned with immediate efficiency, looking to possible long-term gains</td>
</tr>
<tr>
<td>In solution generating:</td>
<td></td>
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<tr>
<td>Adaptors prefer to generate a few novel, creative, relevant and acceptable solutions aimed at “doing things better.” They have confidence in implementing such solutions effectively, despite size and complexity</td>
<td>Innovators generally produce numerous ideas, some of which may not appear relevant or be acceptable to others. Such ideas often contain solutions which result in “doing things differently”</td>
</tr>
<tr>
<td>In organisations:</td>
<td></td>
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<tr>
<td>Adaptors prefer more well-established, structured situations. They are best at incorporating new data or events into existing structures or policies, making them more efficient. Adaptors are essential to managing current systems, but in times of unexpected changes from unexpected directions, they encounter difficulty regrouping established roles</td>
<td>Innovators prefer less tightly structured situations. They use new data as opportunities to set new structures or policies, accepting greater risk to the current paradigm. Innovators are essential in times of radical change or crisis, but may have trouble applying themselves to managing change within ongoing organisational structures</td>
</tr>
</tbody>
</table>

**Source:** Adapted from Kirton (2003)
IBM, for example, practiced creative imitation by using the concept first devised by Apple. The original idea of the personal computer came from Apple, who successfully marketed the innovation. IBM – who had originally thought that personal computers would be too expensive – recognised the potential and set to work to become the industry standard and to dominate this market (Langlois, 1992).

The role of the entrepreneur can therefore be presented as a continuum ranging from the entrepreneur as a creative imitator to the entrepreneur as an originator (Paulson Gjerde et al., 2002).

Both the internal and external environments can have a significant impact on innovation (Jin, 2000). Evidence shows that firms develop different products (creative imitations or major innovations) due to environmental factors such as its relationship to the market, its competitors, and industry practices (Ali, 1994). Constant and rapid change in the business environment can make decision-making and innovation uncertain and ambiguous (Greve and Taylor, 2000). Thus, organisations must systematically scan both its internal and external environments. A thorough examination of the internal environment involves the evaluation of novel combinations of existing technology, shelved concepts and ideas, and new applications for existing competencies. External scanning consist of:

- Searching, filtering and evaluating potential opportunities from outside the organization, including related and emerging technologies, new markets and services, which can be exploited by applying or combining with existing competencies (Tidd et al., 2001, p. 293).

The above factors can be used to develop a combined and sequential definition of entrepreneurship and innovation (see Figure 3):

Corporate entrepreneurship can be defined as the effort of promoting innovation in an uncertain environment. Innovation is a process that provides added value and novelty to the organisation, its suppliers and customers through the development of new procedures, solutions, products and services as well as new methods of commercialisation. Within this process the principal roles of the corporate entrepreneur are to challenge bureaucracy, to assess new opportunities, to align and exploit resources and to move the innovation process forward. The corporate entrepreneur’s management of the innovation process will lead to greater benefits for the organisation.

A holistic view of entrepreneurship and innovation
The following section will present a critical evaluation of the corporate entrepreneurship and innovation literature in order to construct a synthesised framework that will illustrate the current view of these two areas.

Key entrepreneurship models
A number of different corporate entrepreneurship models have been reviewed and their key features, contributions and weaknesses are presented in Table III.

Although Table III demonstrates that these models have a number of weaknesses, they also contribute some valuable information in order to help in the understanding of entrepreneurship. Powell and Bimmerle (1980) suggest, for example, that entrepreneurship is initiated by three sets of attributes, namely entrepreneurial descriptors, precipitating factors and venture-specific factors. Entrepreneurial
descriptors include individual traits, personal fitness, knowledge and skills. According to Powell and Bimmerle (1980, p. 34):

If enough of the entrepreneurial descriptors … are present in the proper balance, the individual can then be regarded as a prime candidate for entrepreneurship.

Embarking on an entrepreneurial venture, however, depends upon the precipitating factors – such as, dissatisfaction, encouragement or the recognition of an opportunity – and venture-specific variables, which will include the evaluation of the project as well as financial and technical support.

Cunningham and Lischeron (1991) adopt a different approach and have sought to emphasise the need for an iterative process, where there is constant re-evaluation of the individual, as well as future opportunities, the entrepreneurial actions undertaken and the potential need for change. Hornsby et al.’s (1993) model differs from both of these two models, as it highlights the need for a participating event that provides the stimulus for entrepreneurial activity. These events may include, for example, a change in management, a merger or acquisition, the development of a new procedure, economic changes, technological changes and revision of consumer demand.

Other researchers have concentrated on categorising and measuring the major traits and variables involved in entrepreneurship (Baum et al., 2001; Powell and Bimmerle, 1980). Covin and Slevin (1991) have classified these elements into three groups: external variables, strategic variables and internal variables. Their approach can be
<table>
<thead>
<tr>
<th>Literature source</th>
<th>Model’s key features</th>
<th>Key variables</th>
<th>Value added</th>
<th>Potential weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Powell and Bimmerle (1980)</td>
<td>Focuses on the venture creation decision-making process with concentration on three key aspects; entrepreneurial descriptors, and precipitating and venture-specific factors</td>
<td>Entrepreneurial descriptors: traits, personal fitness, knowledge and experience</td>
<td>Categorises the entrepreneurial characteristics into distinct divisions seeking to highlight complexity in the process</td>
<td>No evaluation of entire entrepreneurial process</td>
</tr>
<tr>
<td>Miller and Friesen (1982)</td>
<td>Examines environmental, information processing, structural and decision making variables</td>
<td>Scanning, Concentration of authority, Planning horizons, Resources, Control</td>
<td>Developed equations for entrepreneurial activity in conservative and innovative firms</td>
<td>Little acknowledgement of behavioural variables</td>
</tr>
<tr>
<td>Covin and Slevin (1991)</td>
<td>Focuses on organisational behaviour with consideration of the context as well as the individual</td>
<td>External variables: industry lifecycle, technological sophistication, Strategic variables: mission strategy, business practices, competitive tactics, Internal variables: culture, resources, Firm performance</td>
<td>Consideration of performance</td>
<td>Only takes a behavioural view of entrepreneurship. Uses high-level variables</td>
</tr>
<tr>
<td>Cunningham and Lischeron (1991)</td>
<td>Entrepreneurship is a reiterative process and focuses on personal values, opportunity identification, planning and acting, and reassessing change</td>
<td>Recognising opportunity, Reassessing need for change</td>
<td>Recognises the need for feedback and the evaluation of self</td>
<td>No output variables stated in the model</td>
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(continued)
<table>
<thead>
<tr>
<th>Literature source</th>
<th>Model's key features</th>
<th>Key variables</th>
<th>Value added</th>
<th>Potential weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hornsby et al. (1993)</td>
<td>A model of corporate entrepreneurship which focuses on organisational and individual characteristics, the precipitating event, the decision to act intrapreneurally, business/feasibility planning, resource availability, ability to overcome barriers and idea implementation</td>
<td>Business feasibility</td>
<td>Emphasis on the multidimensional and interactive nature of intrapreneurship</td>
<td>No evaluation of entire entrepreneurial process</td>
</tr>
<tr>
<td>Morris et al. (1994)</td>
<td>An integrative model of entrepreneurial inputs and outcomes</td>
<td>Firm performance: value creation, new products, services or processes, profits/benefits, revenue growth</td>
<td>Process perspective and the variable nature of entrepreneurship with innovation as a possible output of the entrepreneurial process</td>
<td>Over-simplification of procedures because they view entrepreneurship and innovation as a single process</td>
</tr>
<tr>
<td>Baum et al. (2001)</td>
<td>Focuses on traits, competencies, motivation, competitive strategies and the environment</td>
<td>Individual traits Management competencies</td>
<td>Categorises the entrepreneurial characteristics into distinct divisions seeking to highlight complexity in the process</td>
<td>No evaluation of relationships between variables</td>
</tr>
</tbody>
</table>

Table III.
criticised for being overly reductionist resulting in a lack of specific and measurable elements. Contrasting this, Miller and Freisen (1982) have concentrated on developing a more scientific approach to entrepreneurship through the development of a regression equation that seeks to assess the entrepreneurial traits. Baum et al. (2001) have taken this one stage further and have attempted to quantify different entrepreneurial traits and measure the strength of their relationship with venture growth.

All of these models can be criticised for seeking to assess only a small part of the entrepreneurial process, and when more scientific methods are used, the focus is almost exclusively on the quantification of tangible outputs. Such approaches clearly ignore some of the more subtle and personal traits associated with entrepreneurial activity, as well as the broader frameworks within which entrepreneurs operate (Morris et al., 1994). A synthesis of key variables in Table III has been undertaken in order to develop a more complete picture of entrepreneurship (see Figure 4). However, the acknowledged concern with this model is the limited recognition given to the inter-relationship between entrepreneurship and innovation.

Key innovation process models
Rothwell’s (1992) taxonomy provides a useful method for classifying innovation models (see Table IV). He produced a framework that allows the classification of the dominant perceptions of innovation through time (Rothwell, 1992, 1994). It is important to note the generational processes at play here because these constructs are used to explain and investigate subsequent model development.

Table V presents a selection of innovation frameworks that were gathered from the literature. The table highlights a lack of fifth generation models even though Rothwell
suggests that these models are vital because organisations need to increase their speed of development and reduce the time it takes from idea conception to market distribution. He views such models as having high levels of integration with other stakeholders outside the organisation. The advantage of this view is the focus on continuous innovation (Tidd et al., 2001). In addition, Rothwell advocates the integration of all internal departments who should work on new projects simultaneously. Here, communication can be enhanced between the appropriate departments by undertaking regular joint group meetings.

Dooley and O’Sullivan’s (2001) model also considers continuous innovation but their model is focused towards internal efficiencies, rather than innovation as new solutions or new methods of commercialisation. As with many other models in the literature, Dooley and O’Sullivan’s framework shows a multi-stage process (Couger, 1995; Roberts, 1988; Roberts and Fusfeld, 1981; Utterback, 1971). Likewise, Roberts and Fusfeld (1981) present an innovation process model. However, this framework is a first generation linear model of innovation that is highly technology-focused and overly simplistic (Kline, 1985). In addition, there is little recognition of the marketing and

<table>
<thead>
<tr>
<th>Generation</th>
<th>Type of model</th>
<th>Characteristics of model</th>
</tr>
</thead>
<tbody>
<tr>
<td>First</td>
<td>Technology push model</td>
<td>Simple, linear, step-wise models showing progression from discovery through to the commercialisation of a new product; emphasis is on R&amp;D; little focus on transformation or the role of the marketplace</td>
</tr>
<tr>
<td>Second</td>
<td>Need pull model</td>
<td>Simple, linear, sequential models that focus on the marketplace; innovations developed from perceived or clearly articulated needs from consumers; marketing directs R&amp;D</td>
</tr>
<tr>
<td>Third</td>
<td>Coupling model</td>
<td>Sequential models with distinct but interacting stages; contain feedback loops and can include technological push, market pull or a combination of both; emphasis on integration between R&amp;D and marketing</td>
</tr>
<tr>
<td>Fourth</td>
<td>Integrated model</td>
<td>Models show an increase in integration between functions and between other companies; show parallel development and increased relationships between R&amp;D, manufacturing, and design as well as with customers and suppliers</td>
</tr>
<tr>
<td>Fifth</td>
<td>Systems integrating and network model</td>
<td>Models include fully integrated parallel development; strategic integration with suppliers and strong links with customers; co-development with stakeholders; emphasis on corporate flexibility and development speed; use of expert systems, simulation modelling and computer-aided design and manufacturing; collaborative research and marketing arrangements; increased focus on quality; innovation placed at leading edge of corporate strategy</td>
</tr>
</tbody>
</table>

Source: Adapted from Rothwell (1992, 1994) and von Stamm (2003)
<table>
<thead>
<tr>
<th>Literature source</th>
<th>Models key feature</th>
<th>Key variables</th>
<th>Value added</th>
<th>Potential weaknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Utterback (1971)</td>
<td>Coupling model incorporating three basic phases; idea generation, problem-solving, and implementation and diffusion</td>
<td>Multi-stage processes; Current economic and social environments; Current technological knowledge</td>
<td>Introduces dynamism with consideration of changing technology and needs over time</td>
<td>Fails to recognise the use of personnel, collaboration and networking</td>
</tr>
<tr>
<td>Roberts and Fusfeld (1981)</td>
<td>Project based multi-stage model; pre-project, project possibilities, project initiation, project execution, project outcome evaluation, and project transfer</td>
<td>Multi-stage processes</td>
<td>Consideration of the required roles in the innovation process</td>
<td>First-generation model focusing on technology-push and the R&amp;D function. No commercialisation or marketing features</td>
</tr>
<tr>
<td>Roberts (1988)</td>
<td>Multi-stage model; recognition of opportunity, idea formulation, problem solving, prototype solution, commercial development and technology utilization and/or diffusion</td>
<td>Multi-stage processes; Technology; The market</td>
<td>Considers drivers of innovation and dynamism</td>
<td>Fails to recognise the use of personnel, collaboration and networking</td>
</tr>
<tr>
<td>Couger (1995)</td>
<td>Stage-dominant linear model; discovery, invention, innovation, output</td>
<td>Multi-stage processes</td>
<td>Presents the relationships between creativity and innovation</td>
<td>Simple, linear, sequential model that largely focuses on the stages of innovation rather than the variety of variables that make up these stages</td>
</tr>
<tr>
<td>Cooper (1998)</td>
<td>Model shows three dimensions of innovation; product/process, incremental/radical, and administrative/technological</td>
<td>Dimensions: product to process, incremental to radical, and administrative to technological</td>
<td>Suggests that innovations can possess the characteristics of different dimensions. Thus, they can be looked at from a broader perspective</td>
<td>Focuses on innovation dimensions rather than processes, functions or networks</td>
</tr>
<tr>
<td>Dooley and O'Sullivan (2001)</td>
<td>Three integrated elements; goals-constraints, actions and results</td>
<td>Multi-stage processes</td>
<td>A structured approach to systems innovation to facilitate continuous innovation</td>
<td>Largely focuses on internal processes rather than future opportunities or potential commercialisation processes</td>
</tr>
</tbody>
</table>
manufacturing functions. Contrasting this is Couger’s (1995) framework – a second
generation innovation model – which considers market needs but lacks any focus on
technological innovation, and organisations using this model are very likely to lose the
capacity to adapt quickly to technological changes. Moreover, the model concentrates
on the stages of innovation rather than the many variables that can have an impact on
the process.

The above models have now been made redundant by the incorporation of both
market and technology considerations. For example, Utterback’s (1971) earlier
sequential process with feedback loops, which appears advanced for its time, has
grouped these different processes into three major categories: idea generation
sub-processes, problem solving sub-processes and implementation and diffusion
sub-processes.

Further improvements – such as Roberts’ (1988) model – were made with the
introduction of fourth generation frameworks, which considered functional overlaps.
The third and fourth generation models, however, are weak because they neglect to
emphasise the focus on multi-level collaboration and networking or information access
and corporate flexibility.

None of the above models, however, comprehensively investigates the actual source,
classifications and management of innovation, and they are overly reductionist.
Cooper (1998), for example, has developed a relatively sophisticated model that
explores three dimensions of innovation. Each dimension consists of a continuum
ranging from:

- Product to process.
- Incremental to radical.
- Administrative to technological.


Much of the misunderstanding and conflict surrounding innovation adoption is owed to a
long-standing unidimensional concept of innovation.

However, many innovations consist of two or even three dimensions. Thus, if an
innovation is combined into just one type there could be a failure to accommodate
varying strategic motivations behind different combinations of innovation dimensions
(Schroeder, 1990). Although Cooper’s model provides a useful starting point, it
overlooks the relative interconnectivity between functions and elements. More
importantly, all of the other models discussed above also lack certain variables that
would provide a clearer understanding of innovation. Consequently, these models have
been synthesised to produce a more holistic view of innovation (see Figure 5), and is
discussed in more detail in the following sections.

**Entrepreneurship and innovation: the missing link**

From the review of the key entrepreneurship and innovation models, it is possible to
identify gaps to be explored and addressed. Two major omissions appear immediately;
firstly, the lack of explanation concerning entrepreneurial and innovation dynamics
(Ireland et al., 2001; Rothwell, 1992), and secondly, the relationship between the
corporate entrepreneur and the innovation process (see Figure 6).
There are a number of areas that can be investigated in order to explain both the dynamics and the relationships between the entrepreneur and the innovation process. These include entrepreneurial attitudes, vision and actions (see Figure 7).

**Entrepreneurial attitudes**

Understanding entrepreneurial attitudes is a critical factor in comprehending the link between the entrepreneur and the innovation process (Kuratko et al., 1997). According to Shaver and Scott (1991, p. 39):

The study of new venture creation began with some reasonable assumptions about the psychological characteristics of “entrepreneurs.” Through the years, more and more of these personological characteristics have been discarded, debunked, or at the very least, found to have been measured ineffectively. The result has been a tendency to concentrate on almost anything except the individual. Economic circumstances are important; social networks are important; entrepreneurial teams are important; marketing is important; finance is important; even public agency assistance is important. But none of these will, alone, create a new venture. For that we need a person, in whose mind all of the possibilities come together, who believes that innovation is possible, and who has the motivation to persist until the job is done. Person, process, and choice: for these we need a truly psychological perspective on new venture creation.

The motivation of the entrepreneur is one particular attitude that has been examined in the literature (Naffziger et al., 1994; Robichaud et al., 2001; Stewart et al., 2003).
Gilad and Levine (1986) assert that individuals develop entrepreneurial tendencies because of negative situational factors or because they wish to exploit potentially profitable business opportunities. A negative situational factor such as job dissatisfaction can motivate an individual into making the decision to become an entrepreneur (Cromie and Hayes, 1991).

In addition, entrepreneurs are driven by both financial and non-financial goals. However, evidence suggests that monetary gain often features second to the need for achievement (Chaganti and Greene, 2002). McClelland (2002a, b) contends that those with a high need for achievement are much more likely to engage in entrepreneurial activities than those with lower achievement thresholds. Entrepreneurs that operate within organisations tend to focus on the need for achievement, searching more for challenge and autonomy than financial gain (Burns and Kippenberger, 1988). However, within many organisations monetary reward is still used as the single most important determinant of success or performance (Miller, 1983; Schumpeter, 1961; Swedberg, 2000). Other entrepreneurial attitudes include propensity for risk taking, confidence, willingness to fail, perceived difficulty of the new venture, persistence, drive and so on (Ensley et al., 2000; Jackson and Rodkey, 1994; Lee-Gosselin and Grise, 1990; Pellissier and Van Buer, 1996; Shaver and Scott, 1991).

**Entrepreneurial vision**

An entrepreneurial vision is an indication of what the organisation expects to achieve in the future. Visioning is a process which involves multiple future time horizons and is a result of intuitive, holistic thinking (Bird and Jelinek, 1988; Boyd and Vozikis, 1994).
It is about seeing what is not there (Carland et al., 1996). In other words, the entrepreneur goes beyond recognising opportunities; rather, he or she has the ability to envision a change in the environment in order to create opportunities (Ensley et al., 2000). The latter type of visioning, therefore, requires intuition and imagination whereas the former is a result of a rational evaluation of the environment.

According to Tellis and Golder (1996) and Boyd and Vozikis (1994), the vision is influenced by self-efficacy, environmental opportunities – such as an improvement in technology or a change in the market place – and the patterns of competition occurring between the organisation and its rivals. Kuratko et al. (2001, p. 62) suggest that:

A meaningful vision is sensible in employees’ eyes, is easily understood, suggests a higher calling, and creates a cultural glue that binds people together in ways that help them share knowledge in competitively relevant ways. Moreover, in the global economy, the most effective vision highlights a firm’s commitment to product, process, and market innovations.

Talented entrepreneurs use the vision to energise employees, help them to meet the challenges that face them and to “facilitate their attempts to achieve more than they thought possible as they strive to help the firm reach its vision” (Kuratko et al., 2001, p. 62).

**Entrepreneurial action**

According to Naffziger et al. (1994), the activities of entrepreneurs can have a major impact of their firm’s performance. The literature suggests a number of different
entrepreneurial activities. For example, Adaman and Devine (2002) suggest that entrepreneurship consists of social interaction, which occurs both within and outside the organisation. In addition, these activities also include resource management and organisation; the ability to influence, and to generate support, from others; and the capability of assessing, shaping and developing ideas (Bird and Jelinek, 1988; Chandler and Hanks, 1994; Korunka et al., 2003; Sadler-Smith et al., 2003; Tidd et al., 2001).

It has also been suggested that entrepreneurs must be capable of flexibility, especially when there is a lack of staff to help them (Bird and Jelinek, 1988). Furthermore, as the venture grows, the entrepreneur can shift his or her actions to new potential opportunities, and hand the day-to-day running of the previous innovation to an appropriate manager.

Further investigation into the above three elements is presented in part 2 in order to further develop the link between entrepreneurship and the innovation process. From this, a more detailed model showing this link is presented as well as some implications for managers and researchers.

Summary
This paper has critically evaluated the literature in order to develop a holistic definition of entrepreneurship and innovation. In addition, the literature has shown that these two concepts are generally discussed as separate entities. This paper has, therefore, presented a synthesised model of the current view of entrepreneurship and innovation. The model highlights a gap between the process – innovation – and the person – the entrepreneur. Consequently, there is a lack of explanation regarding the relationships and dynamics of these components within the literature. It is suggested that further examination of three variables – entrepreneurial attitudes, vision and actions – as they pertain to innovation is required. In part 2, these variables are discussed in more detail and new model of entrepreneurship and innovation is developed.

References


