THE HUMAN FACTOR IN DESIGNING A SUSTAINABLE OPPORTUNITY

Manuscript for the SBIJ

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ABSTRACT

The primary objective of this paper is the development of a new management model for entrepreneurial behavior based on a literature review of psychological and strategic management concepts. It offers ideas underpinning entrepreneurial tendencies along with practical orientations and suggestions for approaching the entrepreneurial processes. The main conclusion is that entrepreneurial tendencies are subject to a number of variables that can be modeled as a means to understand how attitudes to this process are developed. This approach can be framed through the resources based theoretical framework as the concepts of the proposed model can be seen as unique resource bundles that stimulate entrepreneurial behavior. The paper subsequently introduces the basis of sustainability and entrepreneurship as a rapidly emerging venturing field in which the human factor can play an important role.

INTRODUCTION

In the field of entrepreneurship scholars have dedicated a great deal of research to develop models for predicting entrepreneurship activities such as starting a venture or realizing success. Previously, academic scholars developed economic models and behavioral models from a strategic management orientation or exclusively from a psychological perspective. In pure neoclassical economic models there was no place for entrepreneurship because there were too many uncertain processes involved that hindered the realization of equilibrium. The entrepreneur didn’t have perfect information to take action with the aim of maximizing utility. In this sense, it can even be doubted if maximizing utility in the economic sense is the driving force of the entrepreneur. In the dominant current economic view, entrepreneurship is studied as a disequilibrium phenomenon in which entrepreneurs occasionally disrupt the existing equilibrium.
Besides economic models in which behavior, thus the human factor, plays a small role, academics offer behaviorally oriented approaches with an exclusive focus on the entrepreneur’s personality, socio-economic backgrounds and traits. In the trait approach, the focus is on personal disposition of individuals. Traits are found by identifying entrepreneurs and non-entrepreneurs (see McClelland, 1961, 1965; Timmons, 1978; Aldrich and Zimmer, 1986; Begley and Boyd, 1987; Gartner, 1988, Low and MacMillan, 1988, Bird and Jelinek, 1988; Chell and Brearly, 1991; Miner, 1999). Variables such as birth order, role models, age, education level, and work habits were studied as predictors as well (Brockhaus, 1982). However most of these factors have not been found to be unique to entrepreneurs, rather they are common to many successful individuals, including managers. Low and MacMillan (1988) therefore conclude that the attempts to develop a personality profile of the typical entrepreneur have been largely unsuccessful. It is thus more useful to distinguish successful and unsuccessful entrepreneurs instead of distinguishing between types of entrepreneurs and managers to find the unique characteristics for each group. In view of the criticism on the trait approach, Robinson, Stimpson, Huefner, Hunt (1991) for example, assumed that attitude theory offers a better alternative for predicting entrepreneurial behavior. This shift towards entrepreneurial behavior is also a result of the assumption that traits and demographic variables are of limited use in training and development of entrepreneurs because they cannot be easily modified. Attitudes on the other hand, can be changed more easily.

Also from a strategic point of view there is another dynamic shift noticeable in the current entrepreneurship literature. Entrepreneurial scholars such as Stevenson (2000) and Timmons and Spinelli (2004) offer models to describe entrepreneurship. To introduce the subject, Stevenson (2000, p.13) defines entrepreneurship as “the pursuit of opportunity without regard to the
resources currently controlled”. Under this umbrella type definition, wide latitude in interpretation between start-up venturing and any later stages of entrepreneurial behavior is offered. Stevenson offers a dynamic description of entrepreneurship, thereby including corporate venturing and intrapreneurship. “In developing a strategic management theory of entrepreneurship it becomes clear that entrepreneurship is defined more by a set of individual traits and is different from an economic function. It is a cohesive pattern of managerial behavior” (ibid, p.13). Timmons and Spinelli (2004) elegantly illustrate the entrepreneurial process as a continuous interplay between opportunity, resources and the entrepreneurial team in an uncertain environment. Early on the uncertainty can be enormous, if not overwhelming, when contrasting the vision of the market opportunity with the processes of verification, resources acquisition, market forces and regulation, not to speak of the capital market context.

A third dynamic view is being offered from the perspective of natural capitalism. Actions are being undertaken by a variety of public and private parties, nationally and internationally, to reduce the externalization effects of current economic processes such as pollution and resource depletion. Social and environmental sustainability are concepts that are not new, but they are not present in the entrepreneurship literature yet. They have been applied to businesses by their owners and managers for centuries based on the personal values they brought to their endeavors. For entrepreneurs the issue of values is usually more personally and directly connected to the pursuit of opportunities than for corporations. For an entrepreneur, a complaint might require reimbursement for returned items or damage done in a community, and the financial impact of that transaction rests directly on the entrepreneur and his venture. It might even threaten reputation and viability of the young firm in the community. The very idea which became the opportunity on which the new venture is based, is usually rooted in a deeply held personal conviction, belief or vision of the entrepreneur. Many new products and services are built on
these personal values (Samsom, 1999). The tendency to start a business can be influenced by several factors described so far.

This paper focusses on behavioral and cognitive aspects by taking human beliefs as a central focus for entrepreneurial activities such as designing a venture from an identified opportunity. Based on the available literature a new model for predicting the process of opportunity definition will be proposed.

**LITERATURE**

In view of the criticism of the traits approach it looks as if the individual perspective was getting lost in the entrepreneurship literature. Recently however, the focus on the individual seems to be alive again with the new perspectives gained from cognitive and behavioral approaches. The dominant current view has been offered by Venkataraman (1997) and elaborated by Shane and Venkataraman (2000). They define the field of entrepreneurship as the scholarly examination of how, by whom, and with what effect opportunities to create future goods and services are discovered, evaluated, and exploited. The field involves the study of sources of opportunities, the processes of discovery, the evaluation and exploitation of opportunities, and the set of individuals who discover, evaluate, and exploit them. It also concerns three types of questions for research: (1) Why, when, and how do opportunities for the creation of goods and services come into existence? (2) Why, when, and how do some people and others do not discover and exploit these opportunities? (3) Why, when, and how are different modes of action used to exploit entrepreneurial opportunities?

By defining the field of research, Shane and Venkataraman have contributed significantly to the current research paradigm. Sarasvathy (2004) contributed by raising the question “whether opportunities exist in the world and need only be recognized or discovered, or whether they are
spun into existence from within the minds of the entrepreneurs”, (Sarasvathy, 2004, p.522). In her view, we have to focus on the design of the firm and designing implies an essential role related to the tools ‘out there’ in the world, as well as, to the purely internal imagination of the designer about what to do with them. According to Sarasvathy, what is found in the world is not opportunity but rather possibility. Entrepreneurs use possibility as a tool and fashion it into opportunity through imaginative interaction both with their tools and with the society in which they live.

In the processes of discovery, evaluation and exploitation of opportunities, the individual entrepreneur or potential entrepreneur, or teams of individuals are the possible actors that make entrepreneurship a phenomenon consisting of actions. This implies that the field can gain not only from cognitive but also from behavioral approaches. The term cognition refers to the collection of mental processes and activities used in perceiving, learning, remembering, thinking and understanding, and the act of using those processes (see for more details about this topic Ashcraft (1998)). A widely accepted definition of entrepreneurial cognition refers to the knowledge structure that entrepreneurs use to make assessments, judgments, or decisions involving opportunity evaluation, venture creation, and growth (Mitchell, Busenitz, Lant, McDougall, Morse, Smith, 2002). In short, the process of opportunity development, verification and implementation. The study of cognition is a psychological field of research based on fundamental research methods including experimental research designs. Studying entrepreneurs in a laboratory setting and applying experimental designs is not common and that implies that entrepreneurship scholars rely a great deal on fundamental psychological insights.

**INGREDIENTS FOR A NEW MODEL**

The resource based perspective of entrepreneurship stems from the theory of the firm of Penrose
(1959) who stated that firms evolve and perform better as their resources evolve. Entrepreneurs combine available resources and exploit them while they become organization specific resources. These organization specific resources cause the individual differences between organizations which create the firms competitive advantages. According to Penrose (1959) the availability of resources alone is not sufficient. It is the subjective aspect of the perception of the entrepreneur which make a resource a relevant input in the production process. In this way she makes the conceptual difference between a resource and a service stating that it is the services which the resources render which make resources material to the pursuit of the opportunity. The concepts of the proposed model are thus the resource inputs and the application of these which makes the resources a service and therefore an actual resource bundle in the entrepreneurial activity. Next, several aspects of this resource bundle will be presented.

ATTITUDES

From an attitudinal perspective one of the most frequently confirmed models in social sciences stems from Fishbein and Ajzen (1975). In their model behaviors can be predicted by intentions. This model, which has been based on the work of cognitive psychologists, has been elaborated by empirical results (Ajzen, 1989; Ajzen and Madden, 1986). Their model is based on the assumption that individuals act on good reasoning. It has been primarily applied to behaviors that are under complete volitional control. Volitional control means that the individual does feel he/she has complete control over their intended behavior. Intentions have been conceptualized as being a function of beliefs that provide a link between beliefs and subsequent behavior. People form attitudes toward performing a given behavior based on beliefs that demonstrating the behavior will result in certain consequences. The attitudes are also based on normative beliefs about the behavior. A person’s attitude is the positive or negative evaluation of
demonstrating a specific behavior. An intention is based on one’s attitude, and the attitude can be predicted by one’s own beliefs and the perception of the beliefs of significant others (i.e. social norms which refer to the perception of pressure towards demonstrating the behavior). This model has been revised by Ajzen and Madden (1986) and is called the theory of planned behavior. It assumes that both intention to a specific behavioral act and the perceived self-efficacy of carrying out that act are the best predictors of the behavioral act.

The assumption that behavior is reasoned does not hold for all entrepreneurial behavior. The tripartite model of Chaiken and Stangor (1987) is therefore more suitable because it offers room for affect. According to this model, an entrepreneur will have three types of reaction to everything such as a place, a thing, an event, an activity or even an opportunity. Psychologist call these reactions affect, cognition and behavior. With respect to an opportunity this means that an entrepreneur will have positive or negative feelings toward it (affect). He/she will have beliefs and thoughts about the opportunity (cognition), developing a certain behavioral intention, and a certain way to behave towards the opportunity seeking process.

We expanded the model with the introduction of the concepts of prevention and promotion orientation, action and state orientation, and, finally, mood orientations. In the next sections we will provide our assumptions for this elaboration. Applied to the design of an opportunity, which is the behavior, means that the intention to design and the perceived self-efficacy of designing the opportunity are the best predictors together with the orientations. Figure 1 shows the concepts that are important in understanding entrepreneurship from a human interactive approach.

In our example we use the orientations that have a direct influence on the intention of the person and on his or her attitudes. The three types of orientations and the personality variables are discussed further in the following sections, all as the less tangible aspects of available
resources.

The psychological side of entrepreneurship

![Diagram of Behavioral Attributes]

Figure 1


**PROMOTION AND PREVENTION ORIENTATION**

According to Higgins (1998), people have two basic self-regulation systems One system regulates the achievement of rewards and focuses people on a promotion goal. In contrast, the other system regulates the avoidance of punishment and focuses people on a prevention goal. Specifically, Higgins (1998) proposes the term promotion for approaching positive outcomes and prevention for avoiding negative outcomes. Higgins (2000) also developed the concept of promotion and prevention in relation to decision-making. This can be applied to the decision of a person to design an opportunity by starting a new venture. It is not only the economic costs that counts but also the psychological costs and the question if it does fit one’s values (the subjective
Higgins’ theoretical views lead to the conclusion that a good decision is not simply a matter of rational cost benefit analysis or a social and rational cost - benefit analysis. There are individual differences in orientations that influence whether an entrepreneur strives for a promotion goal or if he/she strives for a prevention goal. This orientation is not a stable characteristic; it can vary for example, with the stage in of the design of the firm. A decision is a good one when there is a fit between the situation and the entrepreneur’s orientation. An entrepreneur who has a promotion goal, such as a profit growth, will be motivated highly when there are opportunities to realize this goal. A lack of opportunities will only serve to frustrate, as a decision to expand is a good one and a decision not to expand is a bad one.

An entrepreneur who has a prevention goal such as not hiring permanent personnel and consciously staying small, will feel better when he/she does not need to hire permanent personnel and instead can make use personnel on an as needed basis, or do things on his/her own. Yet when he/she does not manage to do the tasks he/she is responsible for on his/her own or he/she cannot find personnel on an as needed basis, the situation will frustrate him/her. In this scenario, a decision to hire permanent personnel is not appropriate because this does not fit with the entrepreneur’s orientation. As such, a decision not to hire permanent personnel is a good one. By introducing the concept of promotion and prevention orientation it is assumed that the actions of an entrepreneur can vary and therefore their decisions can vary due to their subjective orientation. These orientations can be seen as inputs in the resource based framework. The interaction of these orientations with the task requirements in this environment lets them evolve into resources.
THE REGULATION OF EMOTION AND MOODS

Manstead and Fischer (2001) defined emotion regulation by making a distinction between mood regulation (negative or positive) and the regulation of specific emotions. They see moods as broad, affective states that are primarily characterized by hedonic qualities and not the appraisal of a specific object. So someone can have a happy or sad mood due to cheerful or depressive music, whereas emotions are more specifically based on appraisals that are relevant to an individual. Emotions have a sequence of processes that are cognitive, affective, and behavioral. Emotions can be regulated by reappraising or avoiding the emotional stimulus whereas moods cannot. Individuals vary in their abilities and inclinations to engage in emotion regulation and in mood regulation. One concept referring to emotion regulation stems from Kuhl and Beckmann (1994). According to Gross, emotions have the following functions (1999).

- They tailor cognitive style to situational demands
- They facilitate decision-making
- They prepare the individual for rapid motor responses
- They promote learning
- They provide information about behavioral intentions to give clues as to whether something is good or bad and to flexibly script complex social behavior.

We focus on the cognitive regulation of emotions from a perspective of control theory (Kuhl & Beckmann, 1994), as it is a concept that could be applied to the entrepreneur. Entrepreneurs deal with several situations where emotions can run very high such as in situations of lost orders or even bankruptcy. We will discuss the action and state orientation followed by mood regulation.
**ACTION AND STATE ORIENTATION**

Kuhl and Beckmann (1994) developed the concept of action versus state control from the action control theory, a frequently applied approach to predict human behavior. The control theory assumes that behavior is never caused by a response to an outside stimulus. Instead, behavior is inspired by what a person wants most at any given time based on his/her fundamental or discretionary or variable human needs. This means that an individual will actively formulate intentions towards behaviors (Ajzen, 1989). This control theory is applicable to entrepreneurial behavior such as actively seeking opportunities as it implies a proactive behavior. Action control is the self-regulatory mechanism that mediates the enactment of action-related mental structures. According to Kuhl and Beckmann (1994) people differ in their disposition toward, or capacity for, action control. Those with a low self-regulatory capacity are called *state oriented* persons. Those with a high self-regulatory capacity are called *action oriented* persons; both are part of one continuum. A state oriented person has a tendency that reflects inertia to act. An action oriented person shows readiness to act. Action and state orientation was developed as a variable influencing goal-striving and it has to do with the ability to initiate and maintain intentions, the ability to make timely decisions, commit to a course of action, initiate action, aid procrastination, handle multiple competing demands, maintain challenging goals, and persist despite failures or setback (Kuhl & Beckmann, 1994). State orientation refers to a low capacity for the enactment of action-related mental structures, whereas action orientation refers to a high capacity for this type of enactment. Action oriented persons can decrease their negative affect, whereas state oriented cannot easily decrease their negative affect. State oriented persons have therefore, a high level of negative mood.

Individuals with a strong action orientation are able to devote their cognitive resources to the tasks at hand, thus enabling them to expediently move from a present goal state to some
desired future goal state. They flexibly allocate their attention for the purpose of task execution and goal attainment. They have the ability to complete tasks after minor failures or setbacks, especially when dealing with high stress situations, uncertainties and setbacks; entrepreneurs will behave different because of the interpersonal differences in the action or state orientation. In the stage of opportunity definition the entrepreneur will benefit from an action orientation. The action orientation is a resource in the resource based framework as it is an active tendency towards an activity.

**MOOD REGULATION**

As stated above there is a difference between emotions and moods. A mood is continuously present and it is not easy to figure out its source. Moods have obviously less intensive appearances and moods influence behavior only in an indirect way by having influence on the cognitive processes.

A positive mood state is one in which a person feels good and therefore will act more socially, cooperatively, creatively and deal more easily with setbacks (Reeve, 2001). People with positive moods tend to have more enjoyable thoughts and memories and they act towards positive thoughts and recalls. We focus on the concept of mental fitness developed by Keizer and Vooren (2006) on the basis of the flow theory of Csikszentmihalyi (2003). The flow theory tries to explain motivation based on elements such as the feeling of enjoyment, capability of control, clearness of goals, concentration level and being in the moment. Mental fitness is a concept consisting of five facets on a continuum of negative and positive. The five facets are: self-confidence, energy, alertness, tension and satisfaction. Self confidence stems from Bandura’s self-efficacy (1991), the confidence with which one can execute specific tasks to obtain a certain goal. Energy tells us if someone is capable of carrying a load. A person with low energy will not
be able to put effort in tasks and feels exhausted. Alertness refers to the level of concentration required to fulfill a task. Tension refers to the level of arousal when dealing with a task. A satisfied person will have a positive evaluation of the situation. These five concepts can be divided into three groups. The first deals with self-confidence and energy as antecedents of behaving in a certain way in given situations. Self confidence represents the cognitive aspect and energy the physical aspect of having control of a situation. The latter deals with the moment as experienced facing tension and alertness. The third category deals with the evaluation of situations based on the concept of satisfaction.

PERSONALITY VARIABLES

Personality variables may have an important role to play in developing theories of the entrepreneurial processes. They form the organization specific inputs for the resource bundles needed to direct competitive advantages. One of the first studies dealing with personality stems from McClelland (1961) who developed the concept of achievement motivation to compare entrepreneurs and non entrepreneurs. From qualitative studies he concludes that achievement motivation is a good predictor of perceived entrepreneurial success. Since that time, several studies have been conducted mainly using non-psychological measures of personality variables. As a result, many inconsistent results have been obtained leading to the conclusion that the trait approach does not have anything to offer towards understanding entrepreneurship. A recent article of Zhao and Seibert (2006) presents a meta-analytic review of the role of personality variables and entrepreneurial status. This review method tries to conclude what role can be prescribed to personality by comparing the results of various studies and taking into account the criteria of reliability and validity of measures used for personality variables. They conclude that most studies included a confusing variety of personality variables, sometimes with unknown
degrees of reliability and validity. Furthermore, often offering little theoretical justification. In vocational psychology, overwhelming evidence exists of differences in mean personality scores across jobs, occupations and work environments. Results indicate significant differences between entrepreneurs and managers with respect to personality dimensions.

The five factor model of personality has been widely accepted in the psychological literature. (McCrae, Costa, Hrebickova, Urbanie, Marin, Oryol, Rukavishnikov, Senin, 2004). Within this model personality consists of five big factors: conscientiousness, openness to experience, neuroticism, agreeableness and extraversion. Each factor, in turn, consists of several variables that document more specific traits. Zhao and Seibert (2006) conclude that this personality model brings together over 40 years of research on the emotional, interpersonal, experiential, attitudinal, and motivational style of an individual.

Therefore we are convinced that it is worth using this model for understanding the entrepreneurial processes such as for instance the design of an opportunity. In addition, during our past research efforts, we attempted to start from a dynamic perspective by simply not using the same personality factor model for entrepreneurs. We thus approached entrepreneurs by using the critical incident technique (Flanagan, 1954) for assessing the personality variables that are linked to entrepreneurial success and failures. In that study we asked entrepreneurs to think of successes and failures and then to describe their actions. From their descriptions we made a list of personality variables which we refer to as behavioral attributes inasmuch as they are derived from specific actions (Nandram & Samsom, 2000; Nandram, 2002).

In framing this list we used the big five personality factors. We developed items for each facet in our list. These items have been validated by us in several studies including the selection of the Ernst & Young Entrepreneur of the Year competition in The Netherlands. An adjusted list of items based on previous findings was analyzed using an advanced statistical method, the
structural equation model in AMOS. This analysis has resulted in a definite scale for using entrepreneurial attributes that we call the EBAI (Entrepreneurial Behavioral Attributes Inventory). It consists of seven variables that have been developed for entrepreneurs and tested. These are: achievement orientation, assertiveness, awareness, hardiness, trusting, flexibility and integrity. In the opportunity definition stage, consciousness of these attributes will help the entrepreneur.

**PRINCIPLES OF SUSTAINABILITY IN STRATEGIC ENTREPRENEURIAL MANAGEMENT**

As we have seen, in entrepreneurship it is the ever present opportunity promising the application of new ideas for products or services in society that acts as the driving force in an organization. Stevenson (2000) defines more entrepreneurial behavior, as opposed to a less entrepreneurial style, in terms of six dynamic dimensions: (1) strategic orientation: an entrepreneurial attitude is focused on opportunity, (2) commitment to opportunity: knowledge of market, willingness to act, (3) commitment to resources: doing more with less, (4) control of resources: access to as opposed to owning resources, (5) management structure: flexible, (6) coordination oriented, flat, reward philosophy: creation and harvesting of value.

We move on to the theme of this paper: from the people aspect to the opportunity and resource aspects. In working with the increasingly embraced concept of sustainability in business and society we will use the model of Natural Capitalism (Hawken, Lovins and Lovins 2000). In their study they propose four principles which make an entrepreneurial opportunity a sustainable one. We have chosen this model inasmuch as it describes the contemporary challenge of sustainability and offers a clear framework for entrepreneurs to explore and pursue entrepreneurial opportunities on the intersection of economy and ecology.
NATURAL CAPITALISM

Natural capitalism offers an objective that is both economic and ecologically based, to provide structure to the concept of business and sustainability. That means, productive and consumptive processes being created and designed in a manner which fundamentally recognize that the economy is in fact limited by the physical ability of the Earth to absorb its impact. Natural capitalism is grounded in four strategies (Hawken, Lovins & Lovins, 2000). As shown below, these can be seen as updates or innovations to traditional business processes.

Radical Resource Productivity.

Here we deal with the supply side of the economy. This activity is based on values which ecology, economy and entrepreneurial activity, already have in common, i.e. doing more with less by creatively re-examining all production processes, resource inputs and their costs. Innovative design, architecture, technology, government stimulated innovation and education as well as fiscal measure to promote sustainability. If fossil fuels were to be charged at their true costs, including externalized resource depletion, pollution and health costs, alternative, ecologically clean sources would not encounter unfair price competition, an example of the tragedy of the commons! A resulting benefit of radical resource productivity would be pollution reduction. Additionally, it might provide for increased employment opportunities. Productivity increases in the range of 4 to 10 multiples are considered feasible. Taken together, these are all good things for economic health. New opportunities for entrepreneurs who, unencumbered by existing business cultures can release their creativity and drive in a market awaiting new opportunities.

Biomimicry.

It is estimated that in the U.S. only about 6% of all material flows in manufacturing
can eventually be found in the final products. Compared with production processes in nature, this appears highly inefficient. Here, Hawken, Lovins and Lovins (2000) offer a poignant note: “As long as it is assumed that there are free goods in the world—free water, clean air, hydrocarbon combustion, virgin forests, veins of minerals, large scale energy and material intensive manufacturing methods will dominate, and labor will be increasingly marginalized. In contrast, if the subsidies distorting resources prices were removed, it would be advantageous to employ more people and use fewer virgin materials.” (p.15). Think of the gigantic agricultural subsidies of the U.S. and the European Union which undermine the otherwise praised advantages of free trade. On the positive side, the explosive development of organic agriculture and foods offers a fine example. Biomimicry is thus using nature’s examples to redesign agricultural and industrial processes to lower energy input, materials use and promote material reuse. Another example would be the use of biological methods and natural flows to process sewage rather than applying large amounts of energy, building resources and chemicals to run sewage plants.

Service & Flow.

As we have seen earlier in this paper customers essentially only buy the benefits of what products and services deliver. Ownership and possession of the underlying product is not normally essential. An example is to buy services for a comfortable office or home climate, thus eliminating the need to own heating and air conditioning equipment. Anderson (1998), founder and CEO of Interface, one of the largest international companies producing floor coverings, introduced the notion of leasing and servicing carpets in tile format, extending the life of the carpet by only needing to replace the high
wear areas. This leaves the efficient operation and management of assets, including ultimate breakdown for recycling after the useful live, to the manufacturers of these systems. Manufacturers have strong motivation for the maintenance of the equipment and so lower costs and improve customer service levels.

*Investing in Natural Capital.*

The most important flow of ecological services which the Earth delivers to its inhabitants’ industrial systems can only continue if investments are made to prevent natural disasters caused by man-made events such as global warming, deforestation, pollution, exhaustion of fresh water supplies and poverty to name some important ones. This might possibly have been demonstrated in 2005 with an all time record of hurricanes in the Gulf of Mexico and the discovery of the radical melting rate of polar ice. Investment would also be required for restoring and enlarging the stocks of natural capital to assist in the functioning of the biosphere which provides ecological services to the inhabitants of the Earth. Water conservation, wetlands restoration and sustainable forestry and reforestation projects are examples. Sustainably grown hardwoods have become a significant new market segment which supports both ecology and economy. So has emissions trading.

Judging by the increasing popularity of green new company starts, sustainable venturing may especially appeal to the creative inclination of entrepreneurs and/or to their values. Natural capitalism and sustainable venturing are thus about designing new and unexpected value chains that meet customer demands and capture their imagination in terms of image, style, social and ecological value as well as product performance. The value chain, as defined by the traditional marketing mix of product, price, place and promotion, is now combined with the product
lifecycle from all stages of manufacture or production through use and final disposal or disassembly. Not only are the physical benefits of the product or service emphasized but also those of the product life-cycle implications including the implied values of the firm taking this approach. Marketing becomes building value-based communities in the broadest sense of the word. The entrepreneur should be convinced of these values in the process of opportunity definition.

CONCLUSION

The different strategic management and psychological concepts which we describe in this paper are part of the human factor we focused on. In Figure 2 we summarize the information from our research of entrepreneurial ventures and define its research framework in order to find consistent patterns to understand the design of the resulting opportunities.
Fig. 2 A management model for entrepreneurship


The model describes the different human factors that might predict entrepreneurship in terms of the design of an opportunity. Outside the model there are different factors that may have an indirect effect on the act of designing an opportunity. The model focuses on an interactive attitude approach. This has many advantages in comparison with previous models which usually contain more static concepts such as organizational structure, business structure, financial frameworks, and forces from the market. This model does not ignore these types of concepts but it narrows it down to the behavior of the entrepreneur as the main decision maker in the process.
of designing a firm. We claim that by focusing on processes a more dynamic view appears from which entrepreneurship will gain in practice and theory. Several inputs have been discussed as part of the resource based theory. These inputs in interaction with the environment produces the resource bundles that are needed to actually start a venture. We assume that the way an entrepreneur regulates his/her emotions will have an influence on the key entrepreneurial processes such as the recognition, evaluation and exploitation of opportunities. His/her moods will also affect these processes but also the way he/she deals with setbacks and difficulties. The decision to design opportunities will be based on a positive attitude towards entrepreneurship. An intention is not enough to start a venture. It is also the belief that he/she can really start because of having the capabilities needed. Entrepreneurship is not only about a strong will but also about the convincing belief in effectively using his capabilities. Of course the behavioral attributes, often called personality, influences the types of decisions that are taken. Last but not least, business and management insights are needed for the actual start-up. Knowledge of the market, the willingness to act efficiently, the abilities and possibilities to access relevant resources, management tasks, the ability to establish a motivated team and the belief of creation and harvesting all will encourage the implementation of an opportunity.

We see that opportunities can be discovered or imagined by anyone such as a potential entrepreneur, an entrepreneur or an entrepreneurial executive. Different psychological cognitive processes of recognition give rise to the imagination. Through experience an individual constructs idealized representation of the most typical events, i.e. a business opportunity that seems to belong together. This process is based on the human need for consistency in the opportunities they perceive. In this case, experience plays an important role in finding consistency. Another source is the mental representation of events that seem to belong together and that are stored in the memory. Investigating this ‘black box’ is out of the scope of this article,
yet this type of research will benefit from experimentally controlled designs in laboratory settings.

Finally, there is no global theory to explain all relevant phenomena for the field of entrepreneurship. The design process is not a linear process, it is rather a dynamic process of trying and learning and therefore adjusting initial intentions and self-efficacy. All the concepts mentioned in the model encourage the development of a positive attitude and therefore a positive intention and self-efficacy to design an opportunity in a career, in society, a venture or a corporate organization or in a not-for-profit organization. For the long term, a solid base is needed that occurs when there is good balance between an individual’s passion, business goals and environmental sustainability.
REFERENCES


