

## FOSTERING INNOVATION AND CORPORATE ENTREPRENEURSHIP IN DEVELOPMENT FINANCE INSTITUTIONS

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**Purpose:** To determine how innovation and corporate entrepreneurship can be fostered in Development Finance Institutions (DFI) by means of an innovation and corporate entrepreneurship training programme.

**Problem investigated:** Development finance institutions are regarded as catalysts for development that needs to address both the market and public failure that results from underdevelopment. There is a need for an improved understanding of what the current state of entrepreneurial orientation is within the DFI's as catalyst of development. An investigation into how innovation and corporate entrepreneurship in development finance institutions can be fostered needs to be investigated.

**Design/methodology/approach:** This research is designed as a formal case study. To demonstrate that innovation and corporate entrepreneurship can be fostered in development finance institutions the study employed a pre-test-post-test control group true experimental design in which the innovation and corporate entrepreneurship climate was diagnosed. A comprehensive ICEAI (Innovation and Corporate Entrepreneurship Assessment Instrument, based on the Corporate Entrepreneurship Assessment Instrument of Kuratko, Hornsby & Montagno 1999) was developed to measure the level of innovation and corporate entrepreneurship in a development finance institution.

**Findings:** The results of the experiment indicate that the ICEAI can be a useful tool in diagnosing the innovation and corporate entrepreneurship environment in development finance institutions; that after the training intervention of the leadership group in the experimental development finance institution, there was a notable increase in developed and approved new venture plans, indicating the organisational leaders can be change agents in innovation and corporate entrepreneurship.

**Value of research:** The study offers empirically tested ideas on how to foster corporate entrepreneurship, innovation and new venture creation within DFIs in order to find new solutions for the challenges of underdevelopment.

*Key words:* Corporate entrepreneurship, intrapreneurship, training programmes, corporate venturing, innovation

## INTRODUCTION

The environment within organisations is constantly changing. The technological development and the scarcity of resources alone endanger stability and predictability of the market. To face fierce competition, organisations must review practices and actively search for new ways to practice flexibility, increase its capacity of innovation and show more competitiveness. The strengthening of entrepreneurship is an important objective for any enterprise that is building its responsiveness to a globalised and changing environment. Drucker (1985) in Aloulou and Fayolle (2005:22) indicates that today's enterprises will not even survive in this time of rapid mutation and innovation if they do not maintain an entrepreneur's proficiency.

Thornberry (2001:1) indicates that many large organisations are seeking ways of reinventing or revitalizing their entrepreneurial roots. In doing so the organisations often long for some of the spark, innovation, speed and risk taking that they once had, but which have slowly eroded under the weight of size, bureaucracy, complex processes and hierarchy.

It has been established that corporate entrepreneurship is a potentially viable means for promoting and sustaining corporate competitiveness. For example, Schollhammer (1982), Miller (1983), Khandwalla (1987), Guth and Ginsberg (1990), Naman and Slevin (1993), and Lumpkin and Dess (1996) have all noted that corporate entrepreneurship can be used to improve competitive positioning and transform corporations, their markets, and industries as opportunities for value-creating innovation are developed and exploited. According to Zahra and Covin (1995), empirical evidence exists to justify the proposition that corporate entrepreneurship leads to superior organisational performance. However, it still remains something of a mystery why such a causal relationship exists, and whether or not corporate entrepreneurship can yield similar results when applied to socio-economic development institutions (Covin 1999).

Consequently, there is an increasing interest in understanding the antecedents and consequences of the entrepreneurial orientation (EO) in established organisations. There is also to be found considerable theory concerning EO causal relationships, but few empirical studies have been done on the corporate entrepreneurship-performance relationship in development finance institutions.

Corporate entrepreneurial training are considered to be one effort to develop and encourage employees to become more entrepreneurial and thus more creative and innovative (Kautz 2003; Marcus & Zimmerer 2003). Kuratko, Hurley and Hornsby (2001:198) indicates that as a way for organisations to develop key environmental factors for entrepreneurial activity, a corporate entrepreneurship training programme can serve as a manipulation to induce the change needed in the work atmosphere.

This paper will next address the problem statement followed by the research objectives of the study; hypothesis; literature review; the specific corporate entrepreneurship training programme used in this study; research methodology and lastly the results, findings, conclusion and recommendations.

## **PROBLEM STATEMENT**

At the start of the twenty-first century, Africa finds itself in a multidimensional socio-economic crisis. It is the poorest continent on earth, with half its population living on less than US\$1 per day (DBSA 2003).

Development Finance Institutions (DFIs) are regarded as super entrepreneurs or as catalysts for development. DFIs are seen as key in addressing both the market failure and the public failure that results in underdevelopment. The persistence of these development challenges in Africa is a clear indication of the market/public failure that continues and, by implication, the failure of DFIs as super entrepreneurs that they are supposed to be. It can therefore be hypothesized that there is a dearth of entrepreneurial orientation and innovation, or simply 'entrepreneurial thinking', in DFIs, which partly accounts for their failure to meet expectations.

Thus, there is a need for an improved understanding of what the current state of entrepreneurial orientation is within these catalysts of development, the DFIs. There is also a need for determining the extent to which efforts to infuse entrepreneurial culture and behaviours can positively influence DFI entrepreneurial orientation and new venture creation.

## **RESEARCH OBJECTIVES**

The management question is: "How can corporate entrepreneurship within development finance institutions be introduced?" The management dilemma of under-development and the apparent under-performance of DFIs, as described in the problem statement, beg for ground-breaking disequilibrating actions (Schumpeter 1934, 1942) or discontinuous innovative actions by DFIs to enhance their effectiveness in delivering on their developmental mandates.

The research will deal with the following research questions:

- Why is corporate entrepreneurship (CE) important for DFI performance?
- How successful can corporate entrepreneurship training be in DFIs?

Of relevance to finding answers to these research questions will be Zahra's (1991) integrated approach that stresses the importance of formal and informal activities in established organisations aimed at enhancing corporate performance and creating new business through product and process innovations and market developments, as well as strategic renewal. These activities can take place at the corporate, divisional,

unit, functional, or project level, with the unifying objective of improving an organisation's effectiveness, competitive position and business performance.

The aim of the study is to create entrepreneurially-minded managers and senior professionals, the leadership group, in an experimental DFI, who would be more attuned to new development market opportunities and would stimulate a more innovative and risk taking culture.

The approach is to teach the leadership group to be corporate venturers themselves, and also to spur more opportunity focus and orientation within the rest of the DFI environment. This approach is supported by a study by Pearce, Kramer and Robbins (1997), which has shown that managers who adopt more entrepreneurially-focused behaviours, such as encouraging the destruction of red tape or encouraging staff to try new ways of doing their work, can have an impact on employee satisfaction as well as the company's bottom line.

## **PROPOSITIONS**

The following propositions are formulated for this study:

- P1: There is not a significant difference between the corporate entrepreneurship opinions of the study observation groups (pre-, post-, and control groups) regarding management support for corporate entrepreneurship.
- P2: There is not a significant difference between the corporate entrepreneurship opinions of the study observation groups (pre-, post-, and control groups) regarding work discretion for corporate entrepreneurship.
- P3: There is not a significant difference between the corporate entrepreneurship opinions of the study observation groups (pre-, post-, and control groups) regarding rewards/reinforcements for corporate entrepreneurship.
- P4: There is not a significant difference between the corporate entrepreneurship opinions of the study observation groups (pre-, post-, and control groups) regarding time availability for corporate entrepreneurship.
- P5: There is not a significant difference between the corporate entrepreneurship opinions of the study observation groups (pre-, post-, and control groups) regarding organisational boundaries for corporate entrepreneurship.

- P6: There is not a significant difference between the corporate entrepreneurship opinions of the study observation groups (pre-, post-, and control groups) regarding innovation organisational support for corporate entrepreneurship.
- P7: There is not a significant difference between the corporate entrepreneurship opinions of the study observation groups (pre-, post-, and control groups) regarding innovation portfolio management for corporate entrepreneurship.
- P8: There is not a significant change in the corporate entrepreneurship opinions of the experimental DFI employees from pre- to post- intervention groups regarding management support for corporate entrepreneurship.
- P9: There is not a significant change in the corporate entrepreneurship opinions of the experimental DFI employees from pre- to post- intervention groups regarding work discretion for corporate entrepreneurship.
- P10: There is not a significant change in the corporate entrepreneurship opinions of the experimental DFI employees from pre- to post- intervention groups regarding rewards/reinforcements for corporate entrepreneurship.
- P11: There is not a significant change in the corporate entrepreneurship opinions of the experimental DFI employees from pre- to post- intervention groups regarding time availability for corporate entrepreneurship.
- P12: There is not a significant change in the corporate entrepreneurship opinions of the experimental DFI employees from pre- to post- intervention groups regarding organisational boundaries for corporate entrepreneurship.
- P13: There is not a significant change in the corporate entrepreneurship opinions of the experimental DFI employees from pre- to post- intervention groups regarding innovation organisational support for corporate entrepreneurship.
- P14: There is not a significant change in the corporate entrepreneurship opinions of the experimental DFI employees from pre- to post- intervention groups regarding innovation portfolio management for corporate entrepreneurship.

The constructs used in the propositions are briefly explained:

**Management support** according to Morris, Kuratko and Covin (2008:330) entails the willingness of top-level managers to facilitate and promote entrepreneurial behaviour,

including the championing of innovative ideas and providing the resources people require to take entrepreneurial actions.

**Work discretion** involves top-level managers' commitment to tolerate failure, provide decision making latitude and freedom from excessive oversight, and delegate authority and responsibility to managers (Morris *et al* 2008:330).

**Rewards/Reinforcement** refers to developing and using systems that reinforce entrepreneurial behaviour, highlight significant achievements, and encourage pursuit of challenging work (Morris *et al* 2008:330).

**Time availability** according to Morris *et al* (2008:330-331) refer to the evaluation of workloads to ensure that individuals and groups have the time needed to pursue innovations and that their jobs are structured in ways that support efforts to achieve short- and long term organisational goals.

**Organisational boundaries** entails precise explanations of outcomes expected from organisational work and development of mechanisms for evaluating, selecting and using innovations (Morris *et al* 2008:331).

**Innovation organisational support** refers to the innovation technology enablement as well as management process and systems. The technology referred to in this study relates mainly to the use of electronic communication to virtually extend the organisational boundaries; overcome cultural; physical and time separation; and tap into new ideas of employees, customers, suppliers and partners (O'Hara-Devereaux & Johansen 1994; Schrage 2000; Thomke 2001). Systems and processes to support innovation also forms part of this construct.

**Innovation portfolio management** includes not only technological innovations and the use of interventions but also introducing new business models. Creating a portfolio of incremental and radical innovations is essential to sustain innovation and corporate entrepreneurship (Davilla, Epstein & Shelton 2006:15). Innovation portfolios are a risk management technique and the top management team of the organisation bears the responsibility of balancing the innovation portfolio.

## LITERATURE REVIEW

The literature review will firstly address the definition and four broad categories of corporate entrepreneurship, followed by the necessity of corporate entrepreneurship. Thirdly it will address the development and implementation of corporate

entrepreneurship within an organisation through corporate entrepreneurship training programmes. Lastly the literature review will conclude with literature on corporate entrepreneurship training programmes.

### **Definition and categories of corporate entrepreneurship**

As with the definition of entrepreneurship, various authors have various interpretations of the definition of corporate entrepreneurship (Kuratko, Hurley & Hornsby 2001:199). Pinchot (1985) defines “intrapreneurship” as entrepreneurship inside the organisation where individuals will champion new ideas from development to complete profitable reality. Ireland, Kuratko and Morris (2006:1) define corporate entrepreneurship as a process through which individuals in an established firm pursue entrepreneurial opportunities to innovate without regard for the level and nature of currently available resources. Vesper (1984) in Kuratko *et al* (2001:199) developed three major definitions of corporate entrepreneurship, which can be identified as (1) new strategic direction; (2) initiative from below; and (3) autonomous business creation. Vesper’s study illustrates that corporate entrepreneurship could be any one of these individual types, as well as any or all possible combinations. Zahra (1991) in Kuratko *et al* (2001:199) includes all the major aspects of corporate entrepreneurship in the following definition of corporate entrepreneurship: “Corporate entrepreneurship refers to formal and informal activities aimed at creating new business in established companies through product and process innovations and market developments. These activities may take place at the corporate, division (business), functional, or project levels, with the unifying objective of improving a company’s competitive position and financial performance. Corporate entrepreneurship also entails the strategic renewal of an existing business”.

Four broad categories of corporate entrepreneurship have been identified in the literature, according to Thornberry (2003:330): corporate venturing, intrapreneuring, organisational transformation and industry rule-breaking. Corporate venturing involves starting businesses within a business and usually originates from a core competency or process. Intrapreneuring is an attempt to take the mindset and behaviours of external entrepreneurs to create and build businesses and bring these characteristics to bear inside an existing and usually large corporate setting. Organisational transformation involves corporate renewal. This type of entrepreneurship fits the original Schumpeterian definition if transformation involves innovation and a new arrangement or combination of resources, and results in the creation of sustainable economic value. Industry rule-breaking is a subset of transformation and involves the competitive environment of the industry.

## **The necessity of corporate entrepreneurship**

Aloulou and Fayolle (2005:24) indicate that the need for corporate entrepreneurship has arisen from a variety of pressing problems among larger organisations, including stagnation, decline, weakness of managerial practice and turnover of innovative-inclined employees who were constrained by the bureaucratic inertia of their organisations. Pursuing corporate entrepreneurship at the established firm level creates a serious challenge for large organisations as well as small ones intending to prosper and flourish in competitive environments. Corporate entrepreneurship is recognised as a potentially viable means of promoting and sustaining competitiveness, and transforming corporations and industries into opportunities for value-creating innovation.

Thornberry (2001:2) states that not all organisations need to embrace a concept of corporate entrepreneurship. Some organisations are doing quite well running their businesses in a planned, effective and efficient manner. But some organisations need an infusion of creativity, especially if they are operating in a rapidly changing or turbulent environment. It is the large slow-moving bureaucratic organisation operating in an increasingly turbulent environment that needs to do the most entrepreneurial soul searching.

The technological development and the scarcity of resources alone endanger the stability and predictability of the market. To face fierce competition, organisations must review practices and actively search for new ways of practising flexibility, increasing their capacity of innovation and showing more competitiveness. The strengthening of entrepreneurship is an important objective for any enterprise that is building its responsiveness to a globalised and changing environment. Drucker (1985) indicates in Aloulou and Fayolle (2005:22) that today's enterprises will not even survive in this time of rapid mutation and innovation if they do not maintain an entrepreneur's proficiency.

Corporate entrepreneurship and the proactive, entrepreneurial behaviour through which it is practised is used in established organisations for a host of purposes in addition to innovation, including increased profitability, strategic renewal, gaining knowledge to develop future revenue streams, international success and the effective configuration of resources as a pathway to developing competitive advantages and as a separate identifiable strategy (Kuratko, Ireland, Coven & Hornsby 2005:699).



### **Developing and implementing corporate entrepreneurship in an organisation through corporate entrepreneurship training programmes**

Antoncic and Zorn (2004:7) point out that one important organisational element that is beneficial to corporate entrepreneurship is organisational and management support for entrepreneurial activities. This support includes top management involvement, encouragement, commitment and style as well as the staffing and rewarding of venture activities. Organisational support has been seen as an important predecessor of corporate entrepreneurship. In particular, support in terms of training and trusting individuals in the organisation to detect opportunities and in terms of resource availability has been proposed to ensure a positive influence on organisational entrepreneurial activities and behaviour. Antoncic and Hisrich (2001), in Antoncic and Zorn (2004:7), have provided empirical evidence for this linkage.

The findings of the research conducted by Antoncic and Zorn (2004:11) indicate that corporate entrepreneurship (new firm formation, product/service and process innovation) can be considered a potent mediator in the organisational support-performance relationship. Organisational support can probably be viewed as an important predecessor, or even a necessary condition, for developing corporate entrepreneurship activities and subsequent improvement in organisational growth and profitability. Both corporate entrepreneurship activities and organisational support of these activities are important for subsequent performance improvements. In order to foster corporate entrepreneurship, managers need ensure that they encourage other members of the organisation; enable worker discretion about work-related decisions; designate idea champions; establish procedures to solicit and examine employee ideas; ensure the permeability of job boundaries, training, rewards and reinforcement; and promote the availability of time and financial resources for pursuing new ideas or projects.

Anon (2001:28) states that it is one thing to designate managerial competency training and/or entrepreneurial training as a priority, another to develop adequate training programmes to meet this priority, another to relate this in practice to the needs of the organisation, and yet another to provide the organisational circumstances to benefit from individual intrapreneurial behaviour. In all of these respects, there are major challenges: to be able to define and measure entrepreneurial competencies or attributes; to improve capability in training and education to cater adequately for their development; to develop appraisal systems that identify such needs and their organisational contexts more adequately and, most importantly, to define more precisely in practice the circumstances under which

entrepreneurial behaviour in organisations will benefit and be supported by the organisation.

Kuratko and Hodgetts (2004:63) suggest that to structure the organisation for a corporate entrepreneurial climate, organisations need to invest heavily in entrepreneurial activities that allow new ideas to flourish in an innovative environment. As a way for organisations to develop key environmental factors for intrapreneurial activity, a corporate entrepreneurship training programme often induces the change needed in the work atmosphere.

Kuratko, Montagno and Hornsby (1993) developed a corporate entrepreneurship training programme over a period of 12 years. The programme consists of six four-hour modules, each designed to move participants to the point of being able to support intrapreneurship in their own work area. The modules address the following topics: introduction to Entrepreneurial Management; thinking creatively; idea development process; assessing entrepreneurial culture and barriers and facilitators to entrepreneurial thinking and action planning. The results of the research study showed a significant increase in all the factors following the completion of the Corporate Entrepreneurship Training Programme. Important observations made from this study include the following: this training programme cannot be conducted only once, it must be repeated in the organisation with as broad an audience as possible; the training programmes value and its effectiveness are limited because of the lack of free time to develop ideas that are critical; and a reward systems must be in place. Top management needs to create an integrated strategy for the change effort.

Marcus and Zimmerer (2003:11-22) indicate that with the absence of intrapreneurial programmes as an integral aspect of corporate strategy, few opportunities have been present to enhance and challenge corporate objectives regarding product/idea development. Factors such as centralised decision-making, investment in short-term periods for new projects, inflexible organisational structures and the discouragement of risk-taking behaviours have all served to lessen the potential impact of intrapreneurial programmes and the individual intrapreneur.

Toftoy and Chatterjee (2005:15) state that corporate entrepreneurship training programmes, within the organisation, will separate organisations from their competitors. The corporate entrepreneurship training programme is a way of launching intrapreneur teams, via intrapreneurship workshops or seminars. A typical workshop could include idea creation and nurturing the idea, researching the specific target market, competitor analysis, ways of developing funding support, selling tips, organising an intrapreneurial team and business planning.

Marcus and Zimmerer (2003:11) investigated the corporate performance of Fortune 500 companies. The investigation focused on corporate entrepreneurial training programmes in Fortune 500 companies and utilised a self-reporting technique in order to determine the presence of such programmes in the organisation. Ten of these Fortune 500 companies showed their willingness to participate in a longitudinal study. This investigation on a longitudinal basis attempts to determine whether the presence of intrapreneurial programmes impacts on the financial performance indicators of corporations. The respondents were asked to indicate subjectively the degree to which the intrapreneurial programme in their organisation had impacted on each of the financial factors and whether that impact was positive or negative. All the respondents indicated that the impact of intrapreneurial programmes was positive. They also found that intrapreneurial programmes that had been in existence for three to five years provided the largest number of successes.

Marcus and Zimmerer (2003:18) conclude their findings and indicate that as corporate entrepreneurship programmes provide opportunities for success, increasing future research could provide an objective basis for determining the extent to which such programmes are feasible and have the potential to be incorporated into organisational structures.

In the following examples of organisations that have tried to instil the entrepreneurship culture, Thornberry (2003:333-336) gives an overview of different corporate entrepreneurship training approaches, programme designs and possible outcomes.

#### *Siemens-Nixdorf Information Systems Company (SNI) and Mott's examples*

Both Siemens-Nixdorf Information Systems Company (SNI) and Mott's followed a corporate venturing approach to promoting corporate entrepreneurship within their respective companies.

SNI approached Babson College in 1995 with a request for proposal to design and deliver a management education programme for its unit managers. The purpose of the programme was to create a group of 300 corporate entrepreneurs within SNI. This was a key component of SNI's already underway change management programme aimed at turning a staid, conservative, risk-averse culture into a more opportunistic, market focused, fast, flexible organisation that would compete more effectively in its market.

The SNI programme was carried out over a two year period and focused on entrepreneurial thinking and acting. Each staff participant was asked to work on an

intense project, which involved the real identification, development of a formal business plan for the new venture, presentation to the executive board, and competition for internal venture capital.

Mott's in its programme aimed to create new businesses and new markets in order to meet an agreed aggressive goal of doubling shareholder value every three years. Mott's realised that such a goal wouldn't be reached through their conservative, albeit successful organisation. Mott's needed to develop a more creative, innovative and entrepreneurial culture. Mott's, unlike SNI, opened up the entrepreneurship programme to anyone in the company who had entrepreneurial tendencies, trained them in entrepreneurial thinking and acting. The intention was that the employees would then be able to identify, develop, and capture new business opportunities.

Mott's programme was similar to that of SNI but was for a much shorter duration. It revolved around the three major activities of entrepreneurs: opportunity identification; shaping; and capturing. The programme was approached much like venture capitalists would. That is, if no venture proposals emanated from the first module on 'opportunity identification', then either more time would be spent on ideation or further investment would cease.

#### *The Venezuelan Oil Company (PDVSA) and Colonia-Axa Insurance examples*

PDVSA and Colonia-Axa aimed at creating entrepreneurially-minded managers who would be more attuned to new market opportunities and would stimulate a more innovative and risk taking culture. The hope was that the resultant change in the managers' behaviours and entrepreneurial orientation would eventually 'trickle down' to the rest of their respective organisations.

While the content of PDVSA and Colonia-Axa training programmes was similar to SNI and Mott's programmes, the approach was to teach managers not to be corporate venturers themselves, but to spur more opportunity focus and orientation within their respective companies as a whole. Therefore, the goal was for these managers to act as catalysts and coaches for more entrepreneurial thinking and acting. This approach is supported by a study by Pearce *et al* (1997), which has shown that managers who adopt more entrepreneurially-focused behaviours, such as encouraging the destruction of red tape or encouraging staff to try new ways of doing their work, can have an impact on employee satisfaction as well as the company's bottom line.

*Summary of findings from the four examples*

Thornberry (2003:335) highlights two main findings from the above four examples, that: much of what start-up entrepreneurs do can be taught to relatively ordinary but motivated corporate individuals; some of the business plans developed as part of the training programmes do eventually result into successful businesses.

**CORPORATE ENTREPRENEURSHIP TRAINING PROGRAMME USED IN THE CASE STUDY**

The experimental DFI Vision 2014 corporate strategy stresses the organization's commitment to innovation and creativity. This is evidenced by the inclusion of 'innovation and corporate entrepreneurship' as one of seven mutually supportive strategic thrusts to underpin Vision 2014. The other six strategic thrusts addressed: risk taking and risk management; knowledge management; strong and smart partnerships; performance recognition and rewards; alignment of strategy structure and processes; and black economic empowerment.

This entrepreneurial strategic posture was assumed in response to the persistent poverty and backlogs in the delivery of basic services in the Southern African Development Community (SADC) region. Also, commercial institutions were becoming more aggressive in their competition with the experimental DFI for the financing of development projects. These and other external push factors spurred the DFI to introduce a change management programme of which innovation and corporate entrepreneurship were cornerstones.

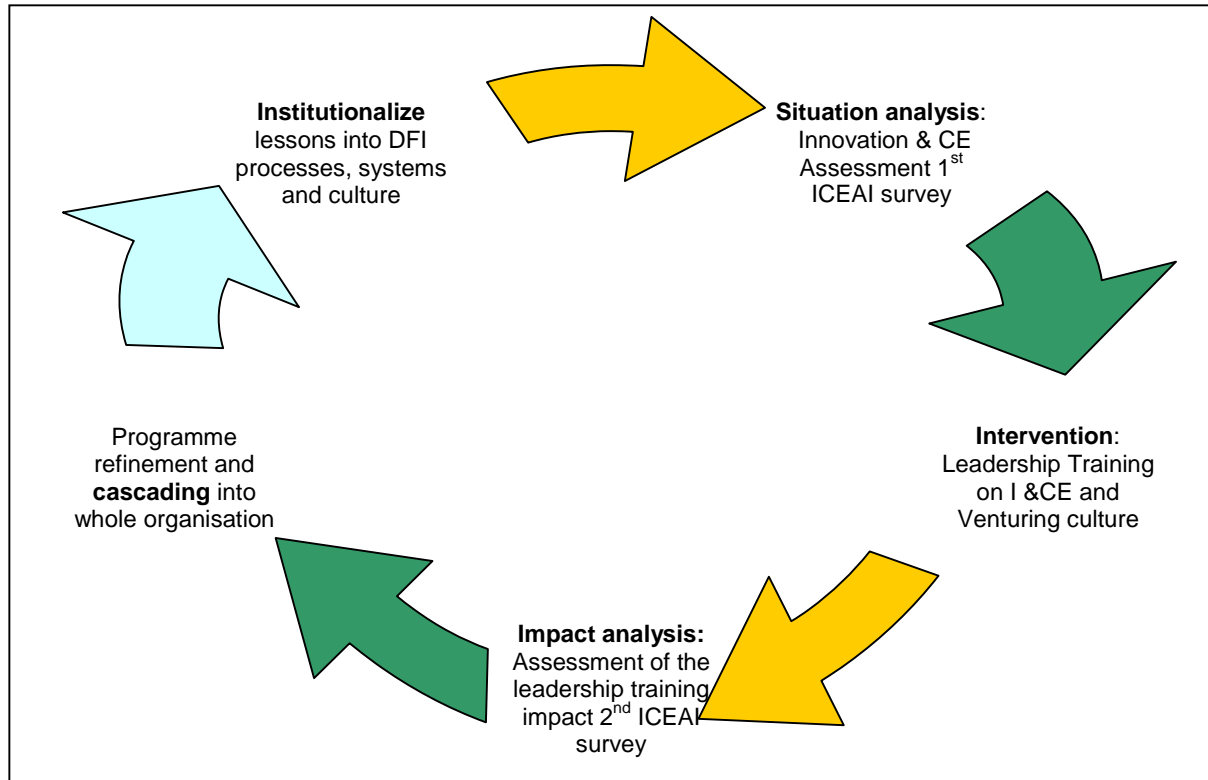
Top management started the change management process by sending out to the organizations messages such as 'think outside the box', 'business as usual is not enough', 'the biggest risk is not taking one', 'mistakes committed in good faith and with good intentions will not be punished but should not be repeated'. An entrepreneurial way of action in achieving organizational goals was encouraged and promoted through a number of change management interventions which also called for better communication, leadership and the revision of corporate values.

The core purpose of these interventions was to ensure that new ideas are strategically consistent with the DFI vision and mission and to enhance its mandate execution.

## Innovation and corporate entrepreneurship process

In order to develop and apply the innovation and entrepreneurial interventions, a holistic process approach as demonstrated below was adopted:

Figure 1: Innovation and CE approach process flow



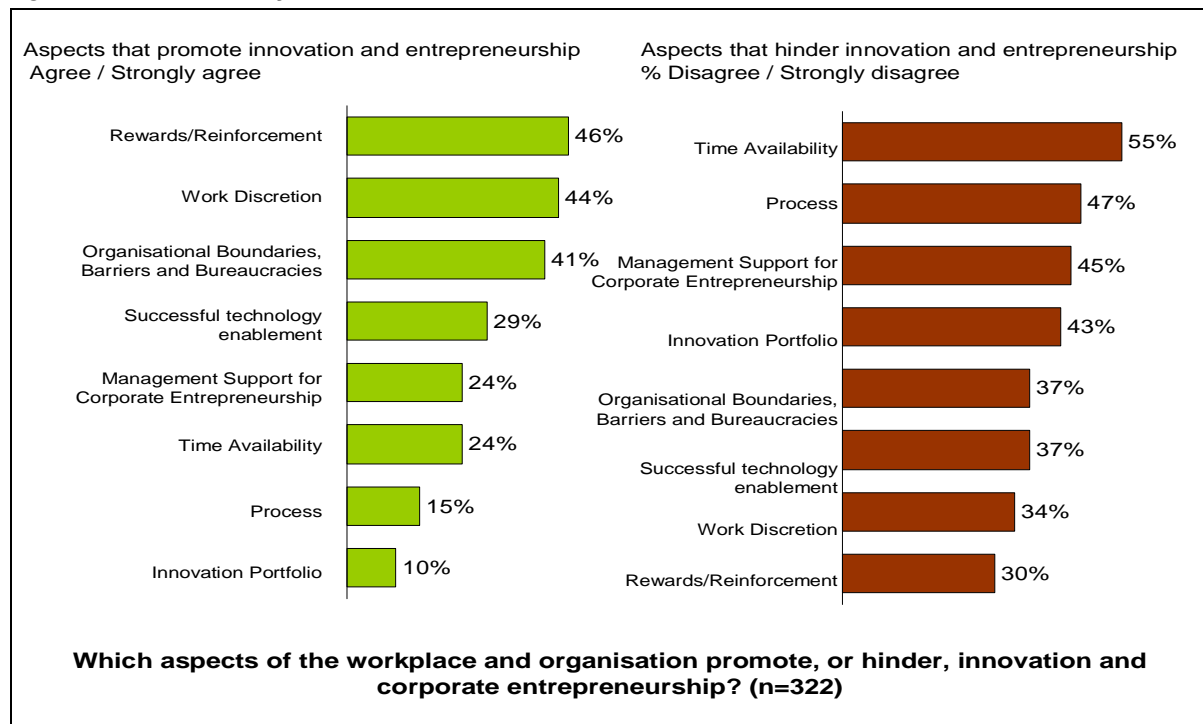
Source: Own compilation

### Step 1: Situation analysis

An assessment of the state of innovation and corporate entrepreneurship at the experimental DFI by measuring employee opinions and feelings was conducted. Staff perceptions were surveyed in March 2005 through the Innovation and Corporate Assessment Instrument (ICEAI), a diagnostic questionnaire.

The dichotomously presented results of the ICEAI are depicted in figure 2 below and reveal that generally, knowledge on innovation and corporate entrepreneurship was medium to low and that there is a need to increase staff's exposure in this regard.

Figure 2: Situation analysis overall results



Aspects with which at least 50% of the respondents agree or strongly agree (or at least 44%, where fewer than 35% or fewer disagree or strongly disagree) with statements in each dimension, are depicted as promoting entrepreneurship and innovation in Figure 2.

Aspects with which at least 50% of the respondents disagree or strongly disagree (or at least 44%, where fewer than 35% or fewer agree or strongly agree) with statements in each dimension, are depicted as barriers to entrepreneurship and innovation in Figure 2.

It therefore appears that employees feel positive about aspects that relate to general job satisfaction such: as work discretion; rewards and reinforcements; and existing organizational boundaries, barriers and bureaucracies. The employees know what level of work experience is expected from them and feel that their managers keep to those parameters when evaluating their job performance.

The corollary is that employees feel that aspects that hinder entrepreneurship and innovation are: time availability for innovation; lack of a clear process flow; and management support for corporate entrepreneurship. Employees also do not seem to understand the concept of innovation portfolio management.

It is on the basis of these results that a targeted training intervention was conceived and designed.

### *Step 2: Leadership training*

The experimental DFI approached the University of Pretoria (UP) who designed and delivered a corporate entrepreneurship and innovation training programme that would address the results of the ICEAI questionnaire. The training started with the leadership group in July 2005. One hundred and four (104) members of the leadership group were trained on corporate entrepreneurship and innovation.

The training of the leadership group was an acknowledgment of the change agency status in the organisation and was aimed at capacitating these leaders to provide staff with the required support for innovation and entrepreneurship. In addition to the promotion of knowledge about entrepreneurship and innovation, a corporate venturing culture was fostered within the leadership group.

Cascading the training programme in a condensed form was then designed for the rest of the organisation. The aim for the cascading of the programme organization wide was to supplement the envisaged change agency role of the leadership group and to ensure that everyone within the organization is given fair opportunity to acquire entrepreneurial skills and to be exposed to the practice of corporate venturing.

### *Step 3: Innovation and corporate entrepreneurship training programme content*

A five module training course was put in place to address specific areas/dimensions measured by the Innovation and Corporate Entrepreneurship Assessment Instrument. The following subsections illustrate the outcome of the assessment per dimension and discuss particular training focal points of the training course lectures and assignments.

- Management Support for CE and innovation

This dimension addressed issues relating to the extent management supports and encourages idea generation, creativity and innovation among staff, especially in relation to the services and products that the DFI offers to its clients. This included issues of career development, value adding new idea generations, calculated risk taking, rules bending, improved work methods, etc. Table 7.1 summarises 'management support' training needs assessment results, the training intervention focal areas, and comments and recommendations.



**Table 1: Management support training intervention focal points**

ICEAI Results	Targeted Training Focal Points	Comments and Recommendations
<ul style="list-style-type: none"> <li>All categories of staff, except management who were neutral, disagreed with positive statements on management support for I&amp;CE.</li> <li>Employees felt that the DFI generally encourages new ideas for the improvement of the organisation, and supports staff with their career development,</li> <li>Employees were much less likely to see support as being targeted specifically towards innovative individuals and projects</li> <li>Project managers and specialist/professional staff were especially negative about the level of management support received for corporate entrepreneurship at the DFI</li> <li>All groups agreed that employees working on projects are not free to make their own decisions</li> <li>All groups other than Unit and executive committee (Exco) managers also agreed that the DFI is not aware of or receptive to workers' ideas and suggestions</li> </ul>	<p>All five-module I&amp;CE course targeting the leadership group:</p> <ul style="list-style-type: none"> <li><u>Module 1</u>-Creativity, innovation and opportunity finding</li> <li><u>Module 2</u>-Corporate Venturing: Creating new businesses within the organisation</li> <li><u>Module 3</u>- Entrepreneurial Human Resource Management</li> <li><u>Module 4</u>-Entrepreneurial Marketing.</li> <li><u>Module 5</u>-Entrepreneurial financial Management</li> </ul> <p>Specific focus on:</p> <ul style="list-style-type: none"> <li>Corporate entrepreneurial management</li> <li>Intrapreneurship</li> <li>Innovation</li> <li>Corporate venturing-Venturing process model</li> <li>Developing the venture business plan.</li> <li>Fitting corporate entrepreneurship into Strategic Management.</li> <li>The conceptual model of entrepreneurship as firm behaviour</li> </ul>	<ul style="list-style-type: none"> <li>Emphasis was laid on building the capacity of management to provide support for innovation and entrepreneurship</li> <li>A significant number of the leadership (80%) group underwent targeted entrepreneurship training</li> <li>The overall training involved building a foundation for management entrepreneurial thinking and acting; support; encouragement; and change agency role</li> </ul>

- Work Discretion

This dimension measured the employee freedom and autonomy in their jobs, opportunity to use own abilities, being own boss, freedom to follow non-conventional methods of doing own work, independent judgment and decision-making and latitude for making mistakes without fear of being punished. Table 2 summarises 'work discretion' training needs assessment results, the training intervention focal areas, and comments and recommendations.

**Table 2: Work discretion training intervention focal points**

ICEAI Results	Targeted Training Focal Points	Comments and recommendations
<ul style="list-style-type: none"> <li>With the exception of project managers, employees were positive about their work discretion received at the DFI</li> <li>Unit and Exco managers have most discretion at work, with a large degree of autonomy and freedom</li> <li>The project manager group feels that they have less autonomy at work or that they are their own bosses</li> <li>Both project managers and Unit/Exco managers felt that they would be subject to criticism and punishment if they made a mistake on the job</li> </ul>	<ul style="list-style-type: none"> <li>Management of innovation</li> <li>Opportunity environment</li> <li>Organizational culture characteristics.</li> <li>Management styles</li> <li>Processes for sustaining a healthy business-building programme</li> <li>Entrepreneurial initiatives that do not always work</li> <li>Managing disappointment</li> <li>Managing Failure/how to handle failure.</li> <li>Reactions to success or failure</li> </ul>	<ul style="list-style-type: none"> <li>Executive direction has promoted and encouraged staff to take responsible risk taking</li> <li>The Chief executive and Managing Director of the DFI has personally assured staff that he will take failure of any entrepreneurial effort by staff member as a learning step provided it is done responsibly</li> <li>Reactions to success and failure are dependent on the organizational culture</li> </ul>

- Employee rewards/reinforcements

This dimension sought to assess positive work challenges, job responsibility, work performance and recognition, targeted rewards that promote or hinder corporate entrepreneurship and innovation. Table 3 summarises 'employee rewards/reinforcements' training needs assessment results, the training intervention focal areas, and comments and recommendations.

**Table 3: Employee rewards/reinforcements training intervention focal points**

ICEAI Results	Targeted Training Focal Points	Comments and Recommendations
<ul style="list-style-type: none"> <li>• All employee groups felt that their jobs present a lot of positive challenges</li> <li>• Employees believe that their responsibilities would be increased if they performed well at work</li> <li>• Only Unit and Exco managers felt that rewards are dependant upon performance</li> <li>• Only managers were likely to think that managers would tell their bosses if an employee performed well</li> <li>• Respondents were even less positive about reward specifically for innovation; most did not feel that innovation is currently being awarded within the DFI</li> <li>• The most frequently mentioned award for entrepreneurship and corporate innovation involved some kind of monetary benefit in the form of a salary increase, a bonus, royalties, or a profit share</li> <li>• Employees were more interested in public recognition and acknowledgement for their work than financial gain</li> </ul>	<ul style="list-style-type: none"> <li>• Entrepreneurial Human Resource Management <ul style="list-style-type: none"> <li>○ Traditional and conventional performance management practices.</li> <li>○ How to give incentives to employees to be entrepreneurial?</li> </ul> </li> <li>• Entrepreneurial compensation and rewards: <ul style="list-style-type: none"> <li>○ Focus on long term performance with incentives for group efforts</li> <li>○ Significant financial rewards for new venture</li> <li>○ Emphasizes responsibility</li> <li>○ Merit and incentive based management practices</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• The DFI's Integrated Reward and Recognition Framework (IRR) with its related bonus scheme are suited for incremental entrepreneurial initiatives at individual and team level</li> <li>• Innovative ways for giving recognition to entrepreneurial individuals and teams within the DFI need to be explored</li> <li>• A combination of incentives and recognition should be explored for promoting both incremental and radical entrepreneurship from idea generation to corporate venturing</li> <li>• Chief Executive Awards have made provision for awarding innovation</li> <li>• I&amp;CE fund set aside for start-ups should include awards for the best ventures</li> </ul>

- Time Availability

This dimension assessed time availability for staff to perform their functions including those related to idea generation, innovation and entrepreneurship. This area also looked at workload and long term problem solving. Table 4 summarises 'time availability' training needs assessment results, the training intervention focal areas, and comments and recommendations.

**Table 4: Time availability training intervention focal points**

ICEAI Results	Targeted Training Focal Points	Comments and Recommendation
<ul style="list-style-type: none"> <li>• Employees agreed that there is hardly enough time to perform their standard job functions</li> <li>• No time to come up with innovative ideas and putting these into action</li> </ul>	<ul style="list-style-type: none"> <li>• Innovation management</li> <li>• Time for I&amp;CE training</li> </ul>	<ul style="list-style-type: none"> <li>• The DFI might learn from other organizations that have put a day per week or month for innovation</li> </ul>

- Organisational boundaries, barriers and bureaucracies

This dimension assessed the level of expectation and agreement on employees' work performance and Balance Score Card measures, level of trust in the performance management system, rigidity of the system and change management role of management. It also examined the level at which policies, procedures, rules and workload promoted or hindered entrepreneurship and innovation within the DFI. Table 5 summarises 'organizational boundaries' training needs assessment results, the training intervention focal areas, and comments and recommendations.

**Table 5: Organizational boundaries training intervention focal points**

ICEAI Results	Targeted Training Focal Points	Comments and Recommendations
<ul style="list-style-type: none"> <li>• Employees know what level of work experience is expected from them</li> <li>• Most employees stated that their managers kept to these parameters when evaluating their job performance</li> <li>• Employees stated that they have to follow a large range of standard operating procedures as part of their major tasks at the DFI</li> <li>• Non-managerial/professional staff does not see scope for themselves to be innovative within their current job description and scorecard</li> <li>• The project managers state that they have many rules and regulations to follow on a daily basis</li> <li>• The project managers also state that there are obstacles and roadblocks within the DFI that they cannot overcome without managerial assistance</li> <li>• Project managers felt that bureaucracy was standing in the way of innovation and corporate entrepreneurship at the DFI</li> </ul>	<ul style="list-style-type: none"> <li>• Creative environment</li> <li>• Creativity, innovation and opportunity finding</li> <li>• Creativity, innovation and opportunity theory-knowledge base</li> <li>• Creative environment barriers: <ul style="list-style-type: none"> <li>◦ Social</li> <li>◦ Economic</li> <li>◦ Physical</li> <li>◦ Cultural</li> <li>◦ Perpetual</li> </ul> </li> <li>• Variables influencing intrapreneurship</li> <li>• Management of Innovation</li> <li>• Internal politics of venturing</li> <li>• Using political Approaches to solve political problems.</li> <li>• The conceptual model of entrepreneurship as firm behaviour</li> </ul>	<ul style="list-style-type: none"> <li>• The DFI has entrenched strong and set ways of doing things based on its historical precedents e.g. business development approaches and the way projects and programmes are appraised</li> <li>• There is a need to increase entrepreneurial behavioural traits within the organization whilst diminishing barriers to the creation of new ideas</li> <li>• Addressing barriers and promoting I&amp;CE stand to unleash creative potential of the DFI staff</li> </ul>

- Successful technology enablement

This dimension measured the extent to which the experimental DFI uses technology to enable innovation and entrepreneurship. This relates to the use of the intranet and/or internet to maximize and promote entrepreneurship and the exploration of the existence of any programme that facilitated the flow and capturing of new ideas. Table 6 summarises 'technology enablement' training needs assessment results, the training intervention focal areas, and comments and recommendations.

**Table 6: Technology enablement training intervention focal points**

ICEAI Results	Targeted Training Focal Points	Comments and Recommendations
<ul style="list-style-type: none"> <li>Employees are sceptical about technology enablement at the DFI</li> <li>Some were uninformed about the state of technology enablement within the DFI, and thus were not able to rate any of the elements for this</li> </ul>	<ul style="list-style-type: none"> <li>The design and delivery of the training intervention acknowledged efforts underway in this regard and therefore did not focus on technology enablement</li> </ul>	<ul style="list-style-type: none"> <li>The Innovation portal was launched at the same time as the I&amp;CE 1st diagnosis was conducted</li> <li>Staff were not familiar with the use of the portal then</li> <li>The efficient management of the portal and deployment of the portal administrator took time to be effected within the DFI</li> </ul>

- The innovation process and portfolio management

**This dimension assessed whether the organization had a portfolio approach to managing innovation** and sought to find out if staff understood the concepts of incremental and radical innovations. It also sought to find out if staff was familiar with the process of screening ideas and resource allocation within the experimental DFI, and whether there was any formalized or structured manner in which ideas are gathered, sorted, responded to, and developed. Table 7 summarises 'Innovation process and portfolio management' training needs assessment results, the training intervention focal areas, and comments and recommendations.

**Table 7: Innovation process and portfolio management training focal points**

ICEAI Results	Targeted Training Focal Points	Comments and Recommendations
<ul style="list-style-type: none"> <li>Staff did not feel sufficiently informed to rate the questions relating to the innovation process</li> <li>Some were doubtful about the very existence of such a process</li> <li>Staff was in agreement about the fact that an innovation portfolio management approach does not currently exist at the DFI</li> </ul>	<ul style="list-style-type: none"> <li>Corporate entrepreneurship process model: <ul style="list-style-type: none"> <li>Setting the scene</li> <li>Identifying ventures</li> <li>Planning, organizing and starting the venture</li> <li>Monitoring and controlling the venture</li> <li>Championing the venture</li> </ul> </li> <li>The DFI business process management</li> <li>Locating the venture in the organization</li> <li>Innovation portfolio to include and balance both radical and incremental innovations</li> </ul>	<ul style="list-style-type: none"> <li>The innovation process unfolded as the DFI Business Process management evolved particularly when this process included idea generation and corporate entrepreneurship</li> <li>There is no I&amp;CE portfolio of innovations currently. It was suggested that such a portfolio should be managed centrally by the Corporate Strategy unit</li> </ul>

#### *Step 4: Programme refinement and cascading into whole organisation*

Corporate venturing involves the starting of new businesses within established organisations, usually emanating from an existing core competency, process or business model (Thornberry 2003). A development finance institution, for example, which has as its core competency the development risk analysis and pricing, can turn this into a separate business and offer development risk management services to

private sector companies who are increasing their involvement in development finance.

During the innovation and corporate entrepreneurship training programme nineteen new corporate venture proposals were identified as part of the outcomes of the five training modules conducted for the leadership group. In addition to this, two other ideas were posted on the innovation portal. Therefore there were twenty one new ventures that were discussed and refined at the plenary session of the members of the leadership group. These twenty one new ventures can be further categorized into six venture plans and fifteen ideas. Of these, three have been accepted for recommendation for funding by executive management (EXCO) of the experimental DFI. The process followed to screen and evaluate the proposals was as follows:

- New venture evaluation panel: Roles and functions

A New Venture Evaluation Committee (NVEC) was established and consisted of leadership representation from each division and an external expert. It is anticipated that the NVEC will over time evolve into a permanent committee with full decision making powers. Its purpose is to screen the new ideas and venture plans identified in the organisation, allocate the necessary resources within its delegated authority for further development of the plans and recommend accepted venture plans to the EXCO for final approval and funding.

It is further hoped that the NVEC will fulfil a change management role by dealing with cultural barriers to entrepreneurship and innovation and fostering entrepreneurial thinking and acting.

- Screening the new venture plans: screening criteria

The experimental DFI introduced standard screening criteria for new ideas and venture plans. These criteria were extensively discussed and tested during the screening of submitted venture plans, and they are:

**Strategic Fit:** This facilitates the assessment of whether the venture is in line with the DFI's strategic objectives and would add value to the customer or organization. It highlights the need to assess whether the venture requires strategic partnerships.

**Market Position and Sustainability:** The market position criterion measures: the status of the current and anticipated competition or substitutes; and the current or potential size of the market. The sustainability criterion measures the ventures' sustainability in terms of affordability and barriers to entry.

**Required Resources:** Resources include both financial and human resources.

- Financial Performance requirements: This includes issues such as projected cost of preparation, start-up capital and life cycle costs, and projected revenues and cash-flows.
- Human Capital: Human Capital Performance requirements involve how the venture will be run and managed, readiness of processes and systems to roll out the execution of the venture plan. This further looks at whether the new venture will require new capabilities or substantial alterations in current capacities and skills. An assessment of whether or not the venture requires outside partners/resources for its execution is undertaken.

**Time horizon:** Time required for venture preparation needs to be stated in each plan. This means time from start (design) to end (launch) including the key milestones of the project planning life cycle.

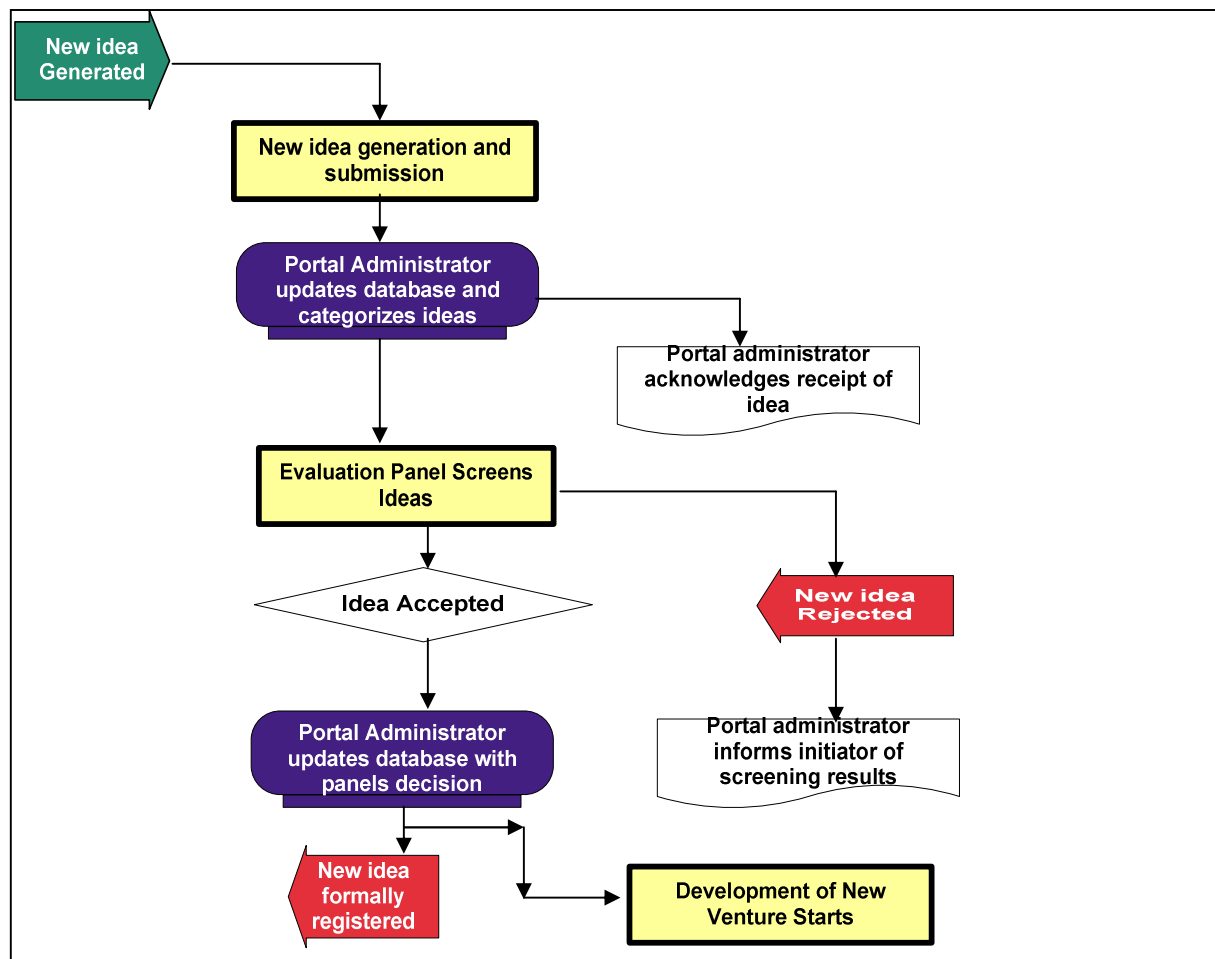
**Newness and originality:** The novelty of the idea is a key consideration. The panel looks at originality, uniqueness, newness and level of creativity of the proposed venture.

**Potential Risk:** This relates to the probability and impact of the risk to the financial performance, credit rating, reputation and development impact.

*Step 5: Institutionalise lessons into DFI's processes, systems and culture*

It became essential to lay out a comprehensive process flow from idea generation to new venture implementation. The process flow served as a guide to inform staff on where to take their creative ideas and how these will be treated at different stages of the innovation process. It provides a description of approval points and clarifies the roles and functions of different role players such as the portal administrator, the venture evaluation panel and executive management. This was posted into the experimental DFI's innovation portal at the start of the business planning phase (Feb 2006) of the corporate venturing component of the training intervention. Figure 3 depicts a process flow for the venturing process.

Figure 3: Venturing process flow



**Source:** Adapted from the BPM's output on innovation and corporate entrepreneurship: Process Steward, H. Moatshe

The innovation portal was put in place and launched in May 2005. Staff members posted their innovative ideas on the portal. It however became clear that for better efficiency of the portal and for a speedy response to the ideas generated, further systems and processes needed to be developed and implemented. To this effect a portal administrator was appointed and the portal's development continues to evolve and to improve in efficiency and effectiveness.

As part of the integration of the change management interventions, innovative ways of raising awareness around entrepreneurship and innovation were implemented. This entailed the use of animated email messaging and closed circuit broadcast screens (plasma screens hanging from the ceiling, instead of paper posters), creating platforms where staff can table ideas and introducing competitions to encourage teamwork in innovation. In order to maintain the momentum of infusing an

entrepreneurial culture in the experimental DFI, national and international entrepreneurs and innovators were invited to participate in strategic conversations and dialogues.

- Participant's evaluation feedback reports

In addition to responses to the open ended questions in the first diagnostic survey, diverse feedback was obtained from the training intervention and Management Review Meetings. These evaluations identified the following factors that promote and enhance entrepreneurship and innovation within the DFI. This feedback is classified under factors that have promoted entrepreneurship and innovation in the DFI to date and those that have hindered it.

- Factors that have promoted entrepreneurship and innovation

#### *Executive management's exposure*

The exposure of most senior executives to the discipline of entrepreneurship and value innovation has been a trigger for steering the experimental DFI towards entrepreneurial orientation. This ensured that interventions introduced were championed from the top management level. It also ensured that entrepreneurship and innovation remained a priority strategic consideration.

#### *Strong leadership*

The DFI leadership has consistently promoted entrepreneurial thinking and acting. The leadership has also committed resources (human, time and finance) to untried ideas and programmes. The leadership support for entrepreneurship has cultivated entrepreneurial thinking amongst staff and enhanced entrepreneurial behaviour.

#### *Organizational values*

Re-defining the experimental DFI values and the visible commitment to those values by the leadership group ensured a solid foundation for the embedding of innovation and entrepreneurship in the organizational culture. The signing of the leadership charter in front of the entire staff membership of the organisation committed the leadership group to espouse entrepreneurial values such as responsible risk taking and decision making.



### *Knowledge management orientation*

The experimental DFI has in place a knowledge management strategy which sets out a vision and processes for maximizing organizational learning. This creates a conducive climate for: ideation, creativity, innovation, and the introduction of new ventures; and shared learning.

The training intervention and venturing exercises have enabled the experimental DFI to systematically collect information from practical experience. The learning involves knowledge collection, accounting, sharing, and application. All this bodes well for the fostering of an entrepreneurial learning culture within the organization.

- Factors that hinder corporate entrepreneurship

### *Attitude towards innovation and corporate entrepreneurship*

The attitude of some staff towards the innovation and corporate entrepreneurship training intervention was sceptical. Staff perceived the introduction of corporate entrepreneurship in the organization as another “fad” that is likely to fade away as it becomes replaced by other incoming initiatives.

### *Performance contracting*

The perception that performance contracting in the DFI is inflexible renders the introduction of new initiatives post the signing of performance contracts difficult. This leads to staff not giving new initiatives priority as such initiatives are unlikely to impact on their performance incentives.

### *The nature of work*

It has also been identified that the diminishing numbers of staff that attended training over time were due to the nature of their work, which required extensive travelling for business purposes. This factor has implications for how management responds and makes ‘time available’ for corporate entrepreneurship in the organization.

## **RESEARCH METHODOLOGY**

### **Research design**

This research is designed as a formal case study. To demonstrate that innovation and corporate entrepreneurship can be fostered in development finance institutions the study employed a pre-test-post-test control group true experimental design in which the innovation and corporate entrepreneurship climate was diagnosed.

The corporate entrepreneurship training component was designed to manipulate the following factors or constructs as independent variables: managerial support for CE; work discretion; rewards/reinforcement; time availability; organisational boundaries, barriers and bureaucracies; innovation; organisational support and; innovation portfolio management. It was then observed how the interventions affected managers, professionals and staff perceptions and practices on corporate entrepreneurship and innovation as dependent variables.

This research approach follows prior research that “examined the determinants of firm-level entrepreneurship by uncovering those variables that enhanced companies’ willingness to be entrepreneurial” (Kuratko & Welsch 2004:369).

### **Data collection**

A comprehensive ICEAI (Innovation and Corporate Entrepreneurship Assessment Instrument, based on the Corporate Entrepreneurship Assessment Instrument of Kuratko, Montagno & Hornsby 1999) was developed to measure the level of innovation and corporate entrepreneurship in a development finance institution. The questionnaire diagnosed the supportiveness of the DFI corporate culture and captured the degree of entrepreneurship, as well as the underlying organisational dimensions of corporate entrepreneurship and innovation in DFIs.

The experimental design used is analogous to a true experimental design where two groups of participants are samples. The first group is an experimental group whose participants comprised the staff population of a local DFI. More than 60 % of the group’s population was pre-tested. A sub stratum of the first group, the “change agent” sub-group, comprising management and senior professionals, was given a higher level stimulus than the rest of the experimental group. The second group is a comparative control group of participants chosen from then international DFIs.

After the initial “pre-test” measurement of levels of entrepreneurship on both groups, the local DFI was subjected to an organisation-wide corporate entrepreneurship training programme for almost a year. The corporate entrepreneurship training programme entailed an intensive formal “innovation and corporate entrepreneurship” training intervention for the “change agent” sub-group of the experimental group, venturing exercises, organisation-wide workshops, innovation circles, CEO innovation awards, quick wins celebrations, and constant communication about corporate entrepreneurship.

The experimental group was then post-tested measured after the training intervention period.

The questionnaire was administered to the entire population of the experimental DFI elements (540 elements).

## Data analysis

For comparative purposes, comparative statistical tools such as factor analysis, Analysis of Variance and Scheffe's S Test were used to test the propositions made and to make statistical significant comparisons within the pre-test-post-test group and between the comparative control group. The control group comprised of managers of international DFI'S.

In order to determine and prove the validity and reliability of the measuring instrument a factor analysis was conducted. The validity levels as well as the variance are indicated in table 8.

**Table 8: Variance explained by the factor**

<b>Factors</b>	<b>Factor 1 Sec 1</b>	<b>Factor 2 Sec 1</b>	<b>Factor 3 Sec 1</b>	<b>Factor 4 Sec 1</b>	<b>Factor 5 Sec 1</b>	<b>Factor 1 Sec 2</b>	<b>Factor 2 Sec 2</b>
<b>VP</b>	<b>4.645</b>	<b>3.881</b>	<b>3.232</b>	<b>2.746</b>	<b>1.834</b>	<b>3.774</b>	<b>2.989</b>

\*\* Eigen values > 1

The VP is the variance explained by the factor. It is computed as the sum of squares for the variables or elements of the factor's column in the factor loading matrix.

The accuracy of the measurement tool as expressed by means of the Cronbach's Alpha levels is indicated in table 9. Cronbach's Alpha is regarded as one of the most important reliability estimates. It measures internal consistency (reliability) by determining the degree to which instrument items are homogeneous and reflect the same underlying construct(s) (Cooper & Schindler 2006:237).

**Table 9: Cronbach Coefficient Alpha with factors of Section 1**

<b>Factors (Constructs)</b>	<b>Standardised Variables Alpha</b>
<b>C 1:</b> Management Support	(Stzd = 0.891409)
<b>C 2:</b> Work Discretion	(Stzd = 0.823068)
<b>C 3:</b> Rewards/Reinforcement	(Stzd = 0.831943)
<b>C 4:</b> Time Availability	(Stzd = 0.716088)
<b>C 5:</b> Organisational Barriers	(Stzd = 0.677381)

**Table 10: Cronbach Coefficient Alpha with factors of Section 2**

<b>Constructs</b>	<b>Standardised Variables Alpha</b>
<b>C 6:</b> Innovation Organisational Support	(Stzd = 0.918801)
<b>C 7:</b> Innovation Portfolio Management	(Stzd = 0.955598)

Only three (3) out of forty seven (47) items (questions) were shown not to be reliable; each affected different constructs and; all Cronbach Alpha values were higher than 0.6.

The computed overall alpha value of 0.9254 for the instrument, indicates a strong internal consistency and a strong degree to which instrument items are homogeneous and reflect the same underlying construct (Cooper & Schindler 2006:237).

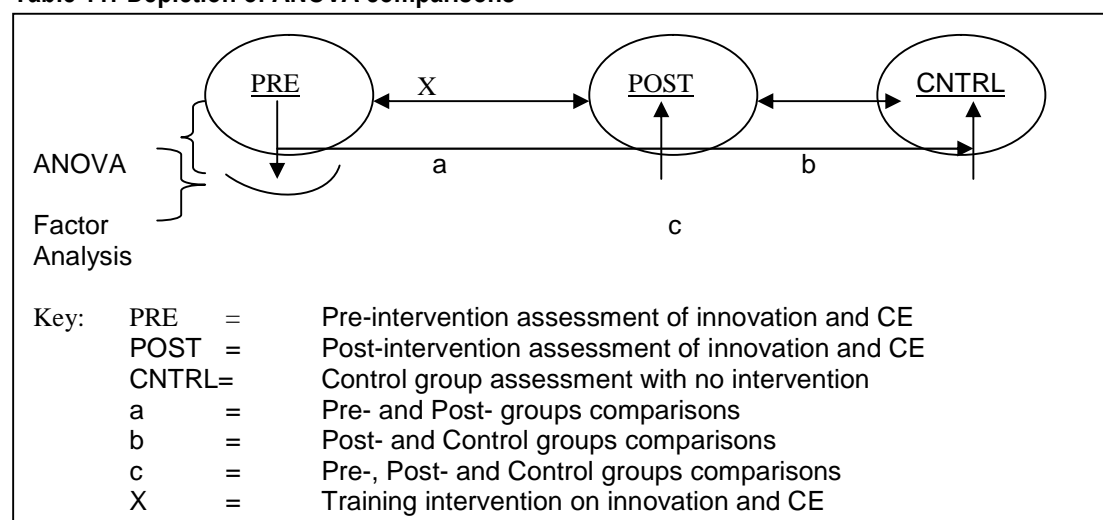
*Post-intervention corporate entrepreneurship assessment: comparisons between all study observation groups*

An ANOVA is conducted between the opinions of the three observation groups, i.e. the pre-intervention, post-intervention and control group. This is to test the propositions that there is no significant difference between the innovation and corporate entrepreneurship opinions of the study observation groups regarding the seven questionnaire constructs.

An ANOVA is conducted between the opinion of two observation groups, i.e. the pre-intervention and the post-intervention groups. This is to test the proposition that, for each of the employee groups of interest, there is no significant difference between the innovation and corporate entrepreneurship opinions of the study observation groups regarding the seven questionnaires constructs. This will indicate the extent of the effectiveness of the training intervention.

Table 11 depicts the ANOVA comparisons that resulted in statistically significant differences diagrammatically.

**Table 11: Depiction of ANOVA comparisons**



*Proposition testing: Comparisons between all study observation groups*

Table 12 presents the results of an analysis of the three observation groups, data sets, for all constructs at the same time.

**Table 12: ANOVA between all observation groups regarding constructs**

Propo- sition	Constructs Name	Observation Group	N	Mean	Standard Deviation	F Values	P Value
P 1	Management Support	Pre	312	2.645	0.694	11.46	<.0001*
		Post	206	2.823	0.717		
		Control	101	3.008	0.659		
P 2	Work Discretion	Pre	312	3.134	0.763	5.16	0.0060*
		Post	206	3.311	0.772		
		Control	101	3.358	0.677		
P 3	Rewards / Reinforcements	Pre	312	3.068	0.782	5.75	0.0034*
		Post	206	3.212	0.785		
		Control	101	3.355	0.767		
P 4	Time Availability	Pre	312	2.553	0.814	1.09	0.3376
		Post	206	2.449	0.860		
		Control	101	2.467	0.855		
P 5	Organisational Boundaries	Pre	312	2.858	0.852	2.49	0.0836
		Post	206	2.935	0.834		
		Control	101	2.706	0.841		
P 6	Innovation Org. Support	Pre	312	2.644	0.770	8.53	0.0002*
		Post	206	2.933	0.755		
		Control	101	2.760	0.838		
P 7	Innovation Portfolio Management	Pre	312	2.500	0.839	9.89	<.0001*
		Post	206	2.817	0.787		
		Control	101	2.512	0.868		
* = statistical significance @ α = 0.05; mean above 3 = above average							

Applying the p-value Rejection Rule that 'reject the null hypothesis if and only if the p-value is less than  $\alpha$ ', based on  $\alpha=0.05$ , the following is found:

**Proposition 1 (P 1): Rejected**

There is a significant difference between the corporate entrepreneurship opinions of the study observation groups (pre-, post-, and control groups) regarding management support for CE.

**Proposition 2 (P 2): Rejected**

There is a significant difference between the corporate entrepreneurship opinions of the study observation groups (pre-, post-, and control groups) regarding work discretion.

**Proposition 3 (P 3): Rejected**

There is a significant difference between the corporate entrepreneurship opinions of the study observation groups (pre-, post-, and control groups) regarding rewards/reinforcements.

**Proposition 4 (P 4): Accepted**

There is not a significant difference between the corporate entrepreneurship opinions of the study observation groups (pre-, post-, and control groups) regarding time availability.

**Proposition 5 (P 5): Accepted**

There is not a significant difference between the corporate entrepreneurship opinions of the study observation groups (pre-, post-, and control groups) regarding organisational boundaries

**Proposition 6 (P 6): Rejected**

There is a significant difference between the corporate entrepreneurship opinions of the study observation groups (pre-, post-, and control groups) regarding innovation organisational support.

**Proposition 7 (P 7): Rejected**

There is a significant difference between the corporate entrepreneurship opinions of the study observation groups (pre-, post-, and control groups) regarding innovation portfolio management.

In summary, it is found that:

- there are **not** significant differences between the Pre-, Post-intervention, and Control groups' corporate entrepreneurship opinions about **Time availability** and **Organisational Boundaries**. It can therefore be concluded without further analysis that the training intervention has not succeeded in these two construct; and that more training is recommended.
- there **are** significant differences between the Pre-, Post-intervention, and Control groups' corporate entrepreneurship opinions about **management support for CE, work discretion, rewards/reinforcements, innovation organisational support, and innovation portfolio management** constructs.

*Proposition testing: Comparisons between Pre- and Post- Study Observation Groups and between Employee Categories*

Where there are significant differences per the analysis in table 12 above, further analysis is performed to see if the differences are between Post- and Pre-intervention and to indicate the direction of the difference, i.e. whether or not the Post- has a higher mean than the Pre-, indicating an improvement. The statistic used is the Scheffe's test, a multiple comparison test, which controls for type 1 error. Table 13 presents Scheffe's test results in this regard.

**Table 13: Scheffe's test: Observation groups regarding constructs**

Propo- sition	Construct Name	Means (of observation groups)			Significance test		
		Pre-	Post-	Control	Post- vs. Pre-	Post- vs. Control	Pre- vs. Control
<b>P 8</b>	Management Support	2.6453	2.8230	3.0081	+***	-***	-***
<b>P 9</b>	Work Discretion	3.1346	3.3114	3.3580	+***	-***	-***
<b>P 10</b>	Rewards / Reinforcements	3.06850	3.2123	3.3551			-***
<b>P 11</b>	Time Availability	2.5536	2.4490	2.4678			
<b>P 12</b>	Organisational Boundaries	2.8589	2.9352	2.7062			
<b>P 13</b>	Innovation Org. Support	2.6449	2.9331	2.7601	+***		
<b>P 14</b>	Innovation Portfolio Management	2.5006	2.8174	2.5128	+***	+***	-***
<b>A mean above 3 = high; +(-)*** = positive (negative) statistical significance</b>							

Based on the results in table 13 the following is found:

**Proposition 8 (P 8): Rejected**

There is a significant change in the corporate entrepreneurship opinions of the experimental DFI employees from pre- to post- intervention groups regarding management support for CE.

**Proposition 9 (P 9): Rejected**

There is a significant change in the corporate entrepreneurship opinions of the experimental DFI employees from pre- to post- intervention groups regarding work discretion.

**Proposition 10 (P 10): Accepted**

There is not a significant change in the corporate entrepreneurship opinions of the experimental DFI employees from pre- to post- intervention groups regarding rewards/reinforcements.

**Proposition 11 (P 11): Accepted**

There is not a significant change in the corporate entrepreneurship opinions of the experimental DFI employees from pre- to post- intervention groups regarding time availability.

**Proposition 12 (P 12): Accepted**

There is not a significant change in the corporate entrepreneurship opinions of the experimental DFI employees from pre- to post- intervention groups regarding organisational boundaries.

**Proposition 13 (P 13): Rejected**

There is a significant change in the corporate entrepreneurship opinions of the experimental DFI employees from pre- to post- intervention groups regarding innovation organisational support.

**Proposition 14 (P 14): Rejected**

There is a significant change in the corporate entrepreneurship opinions of the experimental DFI employees from pre- to post- intervention groups regarding innovation portfolio management.

In summary, the results in table 13 indicate:

- A statistically significant improvement from the pre-intervention to post-intervention state of innovation and corporate entrepreneurship at the experimental DFI in all but three constructs.
- Two of the constructs that do not show a statistically significant difference, 'rewards/reinforcements' and 'organisational boundaries', show an improvement, albeit not statistically significant, with rewards/reinforcements construct also showing an above average mean.
- Where the intervention **has not** been a statistically successful, opinions on innovation and corporate entrepreneurship are below average, and innovation and CE opinion levels are at similar levels in all experiment DFIs, alternative intervention mechanisms will be recommended for future research and implementation.

Where there **has been** a statistically significant difference (improvement) from pre- to post- intervention groups per construct, further analysis is conducted below to



determine which employee categories contributed most, or did not contribute, to the improvement. Conversely, the analysis will show areas of focus in other (non-experimental) DFIs for them to be able to improve their innovation and corporate entrepreneurship climate. This will also highlight remaining areas of focus in improving or sustaining similar interventions in DFIs.

## **FINDINGS**

It was found that the corporate entrepreneurship training intervention was aligned with the results of the innovation and corporate entrepreneurship assessment.

Concrete evidence in the form of viable business plans for new corporate ventures, have emerged to demonstrate a practical increase in the leadership group's own corporate venturing capability. This group was targeted for innovation and corporate entrepreneurship training so that they can serve as change agents for the rest of the experimental DFI.

The regular administering of the ICEAI to identify both triggers and barriers of entrepreneurship is necessary. This should lead to an in-depth qualitative exploration of ways and means of how to reinforce enhancers and minimize or eliminate barriers.

The main general findings from the literature review are:

- Corporate entrepreneurship is important for DFIs because it can enhance their entrepreneurial thinking and acting, or performance, and consequently place them in a position to play the role of 'super entrepreneur' or catalyst for development;
- There are distinctive entrepreneurial characteristics that should be targeted to foster Corporate entrepreneurship. These are: risk taking propensity; desire for autonomy; need for achievement; goal orientation; and locus of control. The identification of these characteristics serves the purpose that: coaching, training and development can be targeted; and mismatches between individual motives and organisational needs can be avoided;
- Entrepreneurial abilities can be directly developed by education, training, and experience;
- An interrelationship exists between an individual and the organisational context where entrepreneurial activity occurs. However, due attention should be placed on the activities of the entrepreneur rather than unduly on the trait of the entrepreneur;

- There is a presence of innovation as a common corporate entrepreneurship dimension among all organisations that can be reasonably described as entrepreneurial;
- The outcome of a combination of the identified organisational entrepreneurship variables and the individual factors is the organisational entrepreneurship intensity, which in turn results in enhanced organisational performance.

The main general findings from the innovation and corporate entrepreneurship instrument development and validity testing are:

- The applied ICEAI instrument development by: removing some questions that are regarded as superfluous and irrelevant to the South African context generally and the DFI environment in particular; adding innovation constructs; and further refining Hornsby's (1990) CEAI instrument, is valid reliable and valid;
- The ICEAI instrument can be applied, in its modified and refined state, in similar research studies.

The main findings from the innovation and corporate entrepreneurship training intervention are:

- Managers and senior professionals of DFIs can be trained to think and act entrepreneurially. This borne out by the fact that after a leadership group in the experimental DFI, twenty two (22) new ventures plans were developed, of which six received final approval and funding. Eventually fifty one (51) new venture plans were developed of which 21 received approval and some required funding.
- The new venture committee has become a permanent committee with monthly meetings to review new venture plans and guide either the authors or executive Management on how to further inculcate the spirit of entrepreneurship.
- Organisational leaders can be change agents for innovation and corporate entrepreneurship.

## **CONCLUSION AND RECOMMENDATIONS**

It is recommended that the present study and its findings should form the basis for infusing DFIs with corporate entrepreneurship and innovation thinking and acting.

It is specifically recommended that:

- The modified innovation and corporate entrepreneurship instrument should be adopted by South African, and perhaps African, development finance institutions

to diagnose their entrepreneurial climate. The modified instrument is valid and reliable for their environments; and

- An intervention similar to the one used for the experimental design of the present study be adopted by African DFIs to foster the innovation and corporate entrepreneurial culture.
- Future research it is recommended that the impact of the improved entrepreneurial thinking and acting by DFIs, as observed in the experimental DFI, on poverty reduction and economic growth should be researched in future.

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