ENTREPRENEURSHIP'S CONTRIBUTION TO THE SUCCESS OF DEREGULATED ELECTRICITY UTILITIES.

BY

WILLIAM GEORGE HARWOOD DYKMAN 7305354-7

Submitted in partial fulfillment of the requirements for the PhD in Entrepreneurship in the Faculty of Economic and Management Sciences

UNIVERSITY OF PRETORIA

STUDY LEADER:
PROF JURIE J VAN VUUREN

April 2005

University of Pretoria etd – Dykman, W G H (2005)

The degree PhD: Entrepreneurship

William George Harwood Dykman

William George Harwood Dykman was born in Nigel on 7 January 1953. He

matriculated in 1970 at The Middelburg High School in the then Eastern Transvaal. In

1982 he completed the B.Eng. (Electrical) degree at the University of Pretoria. In 1989

he completed a Master in Business Leadership (MBL) at the University of South Africa

(UNISA). He worked for 17 years in various middle- and top management positions at

Verwoerdburg - and Pretoria City Councils. Since 2001 he is the Manager: Energy

Business for the City of Tshwane Metropolitan Municipality.

In his thesis entitled 'Entrepreneurship's contribution to the success of

deregulated electricity utilities' the promovenda's researched the entrepreneurial

orientation and its impact on South African Electricity Distribution Organizations'

success. By means of a comprehensive empirical study, making use of descriptive

analysis, factor analysis, and analysis of variance, the candidate provides sufficient

proof that the South African Electricity Distribution Organizations can, in general, not be

classified as being entrepreneurial. Given the excellent results of the Cronbach Alpha

and Factor Analysis, the instrument developed proved to be reliable and valid and could

be used for similar studies. Correlation between constructs influencing corporate

entrepreneurship is identified and recommendations made. It was found that the

strategy of the organizations to be entrepreneurial is interrelated with the demographic

variables of organizational structure, business experience, reward systems, and

business area. It is recommended that these factors receive priority attention during the

development of a South African progamme to develop entrepreneurship within the

South African Distribution Organizations. The framework and recommendations makes

a contribution to the body of knowledge on this subject, especially with regards to the

state – and municipal controlled electricity departments in South Africa.

Leader

: Prof Jurie. J. Van Vuuren

External examiners

: Prof W.M. Conradie

Dr. C.H. Watson

ABSTRACT

Against the background of the Report on the restructuring of the electricity distribution industry in South Africa, indicating that some of the, to be formed, Regional Electricity Distributors may find it difficult to be viable, it was suggested that the promotion of entrepreneurship within the distributors will enhance performance.

Stemming from this general suggestion, the following questions for the purpose of this thesis evolved:

- Can corporate electricity utilities be seen as "normal" corporate business or should it be seen as 'monopolistic organizations'?
- Will corporate entrepreneurs jeopardize or enhance the availability and affordability of the organizational products, in this instance electricity supply?
- □ What will the implications be on the success of the utility/corporation?
- How should management promote entrepreneurship?

In the review of the related literature it was found that very little information is available on electricity utilities. However, the literature on corporate entrepreneurship was used to inform the study, as the electricity utility can be seen as one type of corporate enterprise. The literature converged on several constructs namely:

- The organizational culture and strategy
- Organizational structure
- Organizational reward systems
- Risk taking

The literature is clear on the finding that when management promoted and supported corporate entrepreneurship in these constructs, the prospect of organizational success improved dramatically.

University of Pretoria etd – Dykman, W G H (2005)

A test instrument was designed and used to evaluate the present South African Electricity Distribution Industry, consisting of 283 Municipal Distributors and Eskom, the national distributor. From the results gained in this study it was found that the present industry differs widely in the following aspects namely:

- Distributor Size
- Performance both on service levels and finances
- Entrepreneurial orientation
- Growth
- Management

It became clear that the South African Electricity Utility environment could, in general, not be seen as being entrepreneurial in nature. This led to the conclusion that the South African Electricity utility should, in the light of international research findings on corporate entrepreneurship, develop an entrepreneurial culture as a major component of their development strategy.

ACKNOWLEDGEMENTS

The successful completion of this study is in large measure due to:

- The leadership of my promoter Prof Jurie van Vuuren who provided enthusiastic guidance and support.
- Dr Solly Millard and Ms Jacqui Sommerville at the Information
 Technology Department of Pretoria University.
- The respondents from the Electricity Industry through whose participation this study was made possible.
- My family and friends for their patience, understanding and support.
- To God Almighty for the grace given me in this life.

DEDICATED TO MY DAD

TABLE OF CONTENTS

CHAP	ΓER 1:	BACKGROUND PROBLEM) AND	ORI	ENTAT	ION	ТО	THE	1
1.1	INTROD	UCTION							1
1.2	THE MAI	NAGEMENT DILEM	MA						3
1.3	MANAGI	EMENT QUESTION	S						3
1.4	RESEAR	CH QUESTIONS							4
1.5	RESEAR	CH OBJECTIVES							4
1.6	IMPORT	ANCE/BENEFITS O	F THE S	TUDY					5
1.7	DESCRI	PTION OF CONSTR	UCTS						6
1.7.1	Corporate	e Entrepreneurship							6
1.7.2	Organiza	tional Success							11
1.7.3	Organiza	tional Demographics	6						11
1.8	RESEAR	CH DESIGN							11
1.8.1	Design								11
1.8.2	Hypothes	ses							12
1.9	METHO	OCLOGY							13
1.9.1	Measure	ment							13
1.10	THE STR	RUCTURE OF THE	THESIS						15
CHAP	ΓER 2:	LITERATURE THEORY	REVIE	EW:	THE	CL	ASS	ICAL	16
2.1	INTROD	UCTION							16
2.1.1	The Ecor	nomists							16
2.1.1.1	Richa	ard Cantillon (1680-	1734)						16
2.1.1.2	Jean-	Baptiste Say (1776	- 1832)						17
2.1.1.3	Josep	oh A Schumpeter (18	383 – 195	50)					17
2.1.2	The Beha	aviorists							17
2.1.3	Post 198	0							17
2.2	THE ENT	REPRENEUR IN F	ORMAL I	MODE	LS				18
2.3	THE PSY	CHOLOGY OF THE	ENTRE	PREN	EUR				18

2.4	ENTREPRENEURSHIP – INTRODUCTION	19
2.5	THE CLASSICAL ENTREPRENEUR	20
2.5.1	Entrepreneurial personality	20
2.5.2	Entrepreneurial motivation	21
2.5.3	Creativity and Innovation	23
2.5.4	Creation, innovation and renewal within an existing organization	23
2.5.4.1	New business venturing	24
2.5.4.2	Innovativeness	25
2.5.4.3	Self-renewal	26
2.5.4.4	Proactiveness	26
2.5.5	Risk-taking	26
2.5.6	Entrepreneurial process	27
2.6	CORPORATE ENTREPRENEURSHIP	30
2.6.1	Corporate Entrepreneurial Orientation	30
2.6.2	Creativity and Innovation	33
2.6.3	Growth	37
2.6.4	Organizational structure	40
2.6.5	Controlling the entrepreneurial activity	43
2.6.6	Entrepreneurial culture	43
2.6.7	Creating the Venture's culture	44
2.6.8	Measuring entrepreneurial performance	46
2.6.9	Reward systems	47
2.7	ENTREPRENEURSHIP AND MARKETING RELATIONSHIP	49
CHAP	TER 3: LITERATURE REVIEW: APPLIED THEORY	51
3.1	INTRODUCTION	51
3.2	CORPORATE ENTREPRENEURSHIP	51
3.2.1	The definition and culture of utilities	51
3.2.2	Management Strategies	57
3.2.3	The role of middle management	62
3.2.4	Changing the electricity industry	65

3.2.5	Measuring C	Corporate Entrepreneurship	66
3.3	THE ROLE	OF ORGANIZATIONAL COMPENSATION SYSTEMS	66
3.4	SUCCESS		68
CHAP	ΓER 4:	METHODOLOGY	70
4.1	INTRODUC	TION	70
4.2	RESEARCH	DESIGN	70
4.2.1	Methodology	y	70
4.2.2	Hypotheses		71
4.2.3	Measureme	nt instrument	72
4.2.3.1	Measurii	ng Entrepreneurial Orientation	73
4.2.3.2	Measurii	ng Success (Performance)	73
4.2.3.3	Control \	Variables	73
4.2.3.4	Demogra	aphics	74
4.2.3.5	Tests an	nd expected results	74
4.2.4	Testing and	implementation	75
4.3	DATA COLI	LECTION	76
4.4	PREPARAT	TION OF THE DATA	76
4.5	DATA ANA	LYSIS	79
4.5.1	Reliability th	rough Cronbach's Alpha	79
4.5.2	Factor Analy	ysis	79
4.5.3	Testing for s	statistical significance	80
4.5.4	Correlation		80
4.5.5	GLM Proced	dure	81
CHAP	ΓER 5:	RESULTS AND FINDINGS	82
5.1	INTRODUC	TION	82
5.2	DESCRIPTI	VE STATISTICS	82
5.2.1	Biographic v	variables variables	82
5.2.2	Demographi	ical variables	83
5.2.3	Demographi	ical statistics variables	84
5.2.4	Company or	rientation statistics	92

6.4	THE RELATIONSHIP BETWEEN NON-ENTREPRENEURIAL ORIENTATION AND BIOGRAPHIC VARIABLES	150
6.3	THE RELATIONSHIP BETWEEN NON-ENTREPRENEURIAL ORIENTATION AND BIOGRAPHIC VARIABLES	150
6.2.3	Correlation between new product/service introduction and product uniqueness, management structures and reward systems	148
6.2.2	Organisation Performance	148
6.2.1	Company Orientation	148
6.2	FACTOR ANALYSIS AND ITEM ANALYSIS	147
6.1	DESCRIPTIVE STATISTICS	146
СНАРТ	TER 6: DISCUSSION OF FINDINGS	146
5.5.4	Social success	141
5.5.3	Financial success	140
5.5.2	Non Entrepreneurial orientation	140
5.5.1	Entrepreneurial orientation	136
5.5	ANOVA	136
5.4.1	Correlation of new product creation with management structure and reward systems	134
5.4	CORRELATION	131
5.3.2.3	Factor correlation	130
5.3.2.2	Determining the optimum number of factors	127
5.3.2.1	Reliability through Cronbach's Alpha	126
5.3.2	Satisfaction with Organizational Performance	126
5.3.1.4	Factor correlation	126
5.3.1.3	Naming the factors	123
5.3.1.2	Determining the optimum number of factors	121
5.3.1.1	Reliability through Cronbach's Alpha	120
5.3.1	Company Orientation	120
5.3	FACTOR ANALYSIS	120
5.2.7	Performance statistics	107
5.2.6	Business behavioral statistics	105
5.2.5	New product/service introduction statistics	103

6.5	THE RELATIONSHIP BETWEEN FINANCIAL SUCCESS AND BIOGRAPHIC VARIABLES	151
6.6	THE RELATIONSHIP BETWEEN SOCIAL SUCCESS AND BIOGRAPHIC VARIABLES	151
6.7	THE RELATIONSHIP BETWEEN ENTREPRENEURIAL ORIENTATION, NON- ENTREPRENEURIAL ORIENTATION, FINANCIAL SUCCESS AND SOCIAL SUCCESS	151
6.8	EVALUATING THE MAIN HYPOTHESIS	153
6.9	LIMITATIONS OF THE CURRENT STUDY	154
6.10	DIRECTIONS FOR FUTURE RESEARCH	154
CHAP	TER 7: CONCLUSIONS AND)
	RECOMMENDATIONS	155
7.1	CLASSICAL ENTREPRENEURSHIP THEORY	155
7.2	APPLIED ENTREPRENEURSHIP THEORY	155
7.3	EMPIRICAL RESEARCH	156
7.4	SUMMARY	157
7.5	RECOMMENDATIONS	158
CH V D.	TER 8. REFERENCES	160

LIST OF TABLES

CHAPTER	. 1:	1
Table 1-1	Definitions of corporate entrepreneurship / entrepreneurship	6
CHAPTER	2:	16
Table 2-1	Some key attributes of the Four Forms of Corporate Entrepreneurship	36
Table 2-1	Roles and actions of Venture Leaders	46
Table 2-3	Morris & Kuratko – Principles to guide award programmes for entrepreneurship	48
CHAPTER	3:	51
Table 3-1	Worldview of Engineers vs. Entrepreneurs	64
CHAPTER	4:	77
Table 4-1	Coding of variables	76
CHAPTER	5:	82
Table 5-1	Age of respondents	84
Table 5-2	Gender	85
Table 5-3	Level of education	86
Table 5-4	Business Area	87
Table 5-5	Work function	88
Table 5-6	Organizational position	89
Table 5-7	Years in position	90
Table 5-8	Nature of utility	91
Table 5-9	Company has a high rate of new products introduced	92
Table 5-10	Company emphasis's continuous improvement of service/product delivery	93

Table 5-11	risk-taking	94
Table 5-12	Company seeks unusual solutions through idea people	95
Table 5-13	Company top management emphasises proven products and services	96
Table 5-14	Top management makes cautious adjustment to problems	97
Table 5-15	Top management practices an active search for big opportunities	98
Table 5-16	Top management has set rapid growth as the dominant goal	99
Table 5-17	Top management makes large bold decisions despite uncertainties of outcomes	100
Table 5-18	Top management compromises among conflicting demands	101
Table 5-19	Top management makes decisions with steady growth and stability as primary concerns	102
Table 5-20	Company introduced new products / services in last year	103
Table 5-21	Degree of new products/services that did not previously exist	104
Table 5-22	Company structure allows movement	105
Table 5-23	The reward system is based on:	106
Table 5-24	Organizational revenue for last financial year	107
Table 5-25	Organizational post tax profit as % of revenue for last financial year	108
Table 5-26	Post-tax profit	109
Table 5-27	Growth in revenue from previous year	110
Table 5-28:	Growth in post-tax profit from previous year	111
Table 5-29	Growth in employment from previous year	112
Table 5-30	Satisfaction with performance of profit on revenue compared to competition	113
Table 5-31	Satisfaction with performance of profit on assets compared to competition	114
Table 5-32	Satisfaction with performance of growth in revenue compared to competition	115
Table 5-33	Satisfaction with performance of growth in post-tax profit compared to competition	116

Table 5-34	Satisfaction with performance of growth in employment compared to competition	117
Table 5-35	Satisfaction with performance on environmental protection compared to competition	118
Table 5-36	Satisfaction with performance in customer satisfaction compared to competition	119
Table 5-37	Calculated Squared Multiple Correlations and Cronbach's Alpha for Company Orientation	120
Table 5-38	Eigenvalues for Company Orientation variables	121
Table 5-39	Loadings for Company Orientation variables	122
Table 5-40	Factor correlation for rotated factors	123
Table 5-41	Factor score covariance	124
Table 5-42	Calculated Squared Multiple Correlations and Cronbach's Alpha for Satisfaction with Organizational Performance	125
Table 5-43	Eigenvalues for Satisfaction with Organizational Performance	126
Table 5-44	Loadings for Satisfaction with Organizational Performance variables	127
Table 5-45	Factor correlation	128
Table 5-46	Factor score covariance	129
Table 5-47	Table of Product Uniqueness by New Products	130
Table 5-48	Table of Management Structure by New Products	131
Table 5-49	Table of Reward Systems by New Products	132
Table 5-50	Chi-Square Statistics for the Management Structure related to New Products	133
Table 5-51	Chi-square statistics for the Reward Systems related to New Products	134
Table 5.52	Analysis of variance results for Factor 1- Entrepreneurial Orientation by All Demographics and Business Behaviour	135
Table 5-53	ANOVA of the factors regarding Entrepreneurial Orientation	136
Table 5-54	Exceedence probability values for differences in Entrepreneurial Orientation between Business Areas [$Pr > t $ for H0: LSMean (i) = LSMean (j)]	137

Table 5-55	Exceedence probability values for differences in Entrepreneurial Orientation between Years Experience [$Pr > t $ for H0: LSMean (i) = LSMean (j)]	138
Table 5-56	Exceedence probability values for differences in Entrepreneurial Orientation between Management Structure (Room to move) [$Pr > t $ for H0: LSMean (i) = LSMean (j)]	138
Table 5-57	Exceedence probability values for differences in Entrepreneurial Orientation between Reward Systems (Based on variability of outcomes) [$Pr > t $ for H0: LSMean (i) = LSMean (j)]	139
Table 5-58	ANOVA for Non-entrepreneurial Orientation related to Demographics and Business Behaviour	140
Table 5-59	ANOVA for Financial Success related to Demographics and Business Behaviour	140
Table 5-60	Analysis of variance results for Social Success by Demographics and Business Behaviour	141
Table 5-61	ANOVA of the effects regarding Social Success	142
Table 5-62	Exceedence probability values for differences in Social Success between Qualifications [$Pr > t $ for H0: LSMean (i) = LSMean (j)]	143
Table 5-63	Exceedence probability values for differences in Social Success between Management Structures (Room to move) [$Pr > t $ for H0: LSMean (i) = LSMean (j)]	143
Table 5-64	Exceedence probability values for differences in Social Success between Reward Systems (Based on variability of outcomes) [$Pr > t $ for H0: LSMean (i) = LSMean (j)]	144
Table 5-65	Pairswise Spearman Correlation for All Factors [$N = 147$, Prob > $ r $ under H0: Rho = 0]	145

LIST OF FIGURES

CHAPTER	R 2:	16
Figure 2-1	Bygrave's model of the entrepreneurial process (Carlock, 1994:28)	28
Figure 2-2	Olson's Entrepreneurial Process (Ulrich 1998:4)	28
Figure 2-3	Morris, Lewis and Sexton's model of Entrepreneurial Inputs and Outputs	29
Figure 2-4	Curvilinear relationship between Cost-based Strategies and Performance	30
Figure 2-5	The dynamics of growth for the entrepreneurial venture	39
CHAPTER	R 3:	51
Figure 3-1	Fitting corporate entrepreneurship into strategic management	61
Figure 3-2	Strategic Integration of Entrepreneurship throughout the organisation	62
CHAPTER	R 5:	82
Figure 5-1	Age of respondents	84
Figure 5-2	Gender	85
Figure 5-3	Level of education	86
Figure 5-4	Business area	87
Figure 5-5	Work function	88
Figure 5-6	Organizational position	89
Figure 5-7	Years in position	90
Figure 5-8	Nature of utility	91
Figure 5-9	Company has a high rate of new product introduced	92
Figure 5-10	Company emphasis's continuous improvement of service/product	93
Figure 5-11	Company key executives actively explore chancy growth opportunities - risk-taking	94

Figure 5-12	Company seeks unusual solutions through idea people	95
Figure 5-13	Company top management emphasises proven products and services	96
Figure 5-14	Top management makes cautious adjustment to problems	97
Figure 5-15	Top management practices an active search for big opportunities	98
Figure 5-16	Top management has set rapid growth as the dominant goal	99
Figure 5-17	Top management makes large bold decisions despite uncertainties of outcomes	100
Figure 5-18	Top management compromises among conflicting demands	101
Figure 5-19	Top management makes decisions with steady growth and stability as primary concerns	102
Figure 5-20	Company introduced new products / services in last year	103
Figure 5-21	Degree of new products/services that did not previously exist	104
Figure 5-22	Company structure allows movement	105
Figure 5-23	The reward system is based on:	106
Figure 5-24	Organizational revenue for last financial year	107
Figure 5-25	Organizational post tax profit as % of revenue for last financial year	108
Figure 5-26	Post-tax profit	109
Figure 5-27	Growth in revenue from previous year	110
Figure 5-28:	Growth in post-tax profit from previous year	111
Figure 5-29	Growth in employment from previous year	112
Figure 5-30	Satisfaction with performance of profit on revenue compared to competition	113
Figure 5-31	Satisfaction with performance of profit on assets compared to competition	114
Figure 5-32	Satisfaction with performance of growth in revenue compared to competition	115
Figure 5-33	Satisfaction with performance of growth in post-tax profit compared to competition	116
Figure 5-34	Satisfaction with performance of growth in employment compared to competition	117

University of Pretoria etd – Dykman, W G H (2005)

Table of Contents

Figure 5-35	Satisfaction with performance on environmental protection compared to competition	118
Figure 5-36	Satisfaction with performance in customer satisfaction compared to the measurement supplies consistent results	119
Figure 5-37	Scree chart of eigenvalues for Company Orientation variables	123
Figure 5-38	Scree chart of eigenvalues for Satisfaction with Organizational Performance	128