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The Road to Success:

Aumne in the Indian Banking Sector

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Executive Summary

This is our business plan that will provide a path to lead Aumne to profitability within eleven (11) months by successfully marketing Indigo's SMS text message app in the Indian banking industry. Indigo SMS is a private and secure mobile text messaging application that allows the exchange of encrypted messages between Indigo customers.

India is a developing nation that has over 1.2 billion people, many of whom depend upon their mobile devices as their exclusive link to the internet. Indian banks offer mobile SMS text message banking as a convenient way for their customers to experience online banking. Since so many people in India process their banking needs by mobile phones, there is a need to provide users with end-to-

end SMS text encryption to protect the interest of the public and the banks from unlawful intrusion. Aumne's Indigo SMS encryption app is ready today to meet the end-to-end encryption challenge that India's banking system needs.

Aumne has experienced difficulty marketing Indigo because it is a product that has little value so long as there are few users. Indigo's few customers are unable to use the encryption tool effectively without a substantial customer base that has metaphorically crossed the chasm. Aumne's future depends upon finding a large market that has the need for securely encrypted text messaging.

Team 5 has researched the Indian banking market and has determined that its future in SMS banking will benefit greatly by Indigo's ability to securely encrypt text messages. Not only does India's banking market need text messages secured, it also represents a very large and growing market. There are currently over 620 million mobile phone users in India and the number is growing rapidly. Each mobile phone user accessing their banking information via SMS banking expects their personal information is kept private and secure. Each customer using SMS banking to process their banking needs represents an opportunity to Aumne because Indigo SMS is ready today to provide end-to-end text messaging encryption. Effective execution of Team 5's business plan will enable Aumne to focus on developing Indigo SMS's use in the Indian banking market.

The business plan will require additional capital of $300,000 in the first six months to support the business development strategy. Team 5 recommends securing the additional capital using venture capitalists. The operation will become profitable by the second quarter of 2013. The monthly sales revenues are forecasted to grow to $306,788 by the end of year 2014.

One of the challenges for Aumne is to establish themselves in the consumer banking industry. To overcome this challenge, Aumne can leverage their partnership with Telekom Srbija and Century Link to convince the Indian banking industry that Indigo SMS is a mature product with a proven track record.

Description of the Business

Aumne is a startup company established in 2008 to provide mobile phone value added services. Aumne is a leading provider of encrypted SMS text messages used to protect the privacy of individuals and corporations. Indigo SMS, the company's main product, is a mobile phone application with enhanced privacy and security components that protects the text messaging functions of the mobile phone. Company information and intellectual property sent via SMS remains safe, no matter what happens to the employee's mobile device. Aumne applications such as Indigo SMS provide a homogeneous user interface across multiple handsets running different operating systems, such as RIM (Blackberry), Symbian (Nokia), Windows CE (Samsung, HTC) and J2ME (Sony Erickson, LG, Nokia).

Industry and Market Analysis

Target Segment:

The market segment that Team 5 recommends Aumne to pursue is the consumer banking segment in the urban areas in India. The reason we suggest focusing on India is the fact that SMS banking is extremely popular and the number of consumers using SMS banking is growing exponentially. Nearly all the banks in India offer SMS banking.

The SMS messages that are exchanged with customers are unencrypted and are a serious concern for both the banks and the consumers. Information sent over the radio waves of a cellular network is vulnerable to interception.

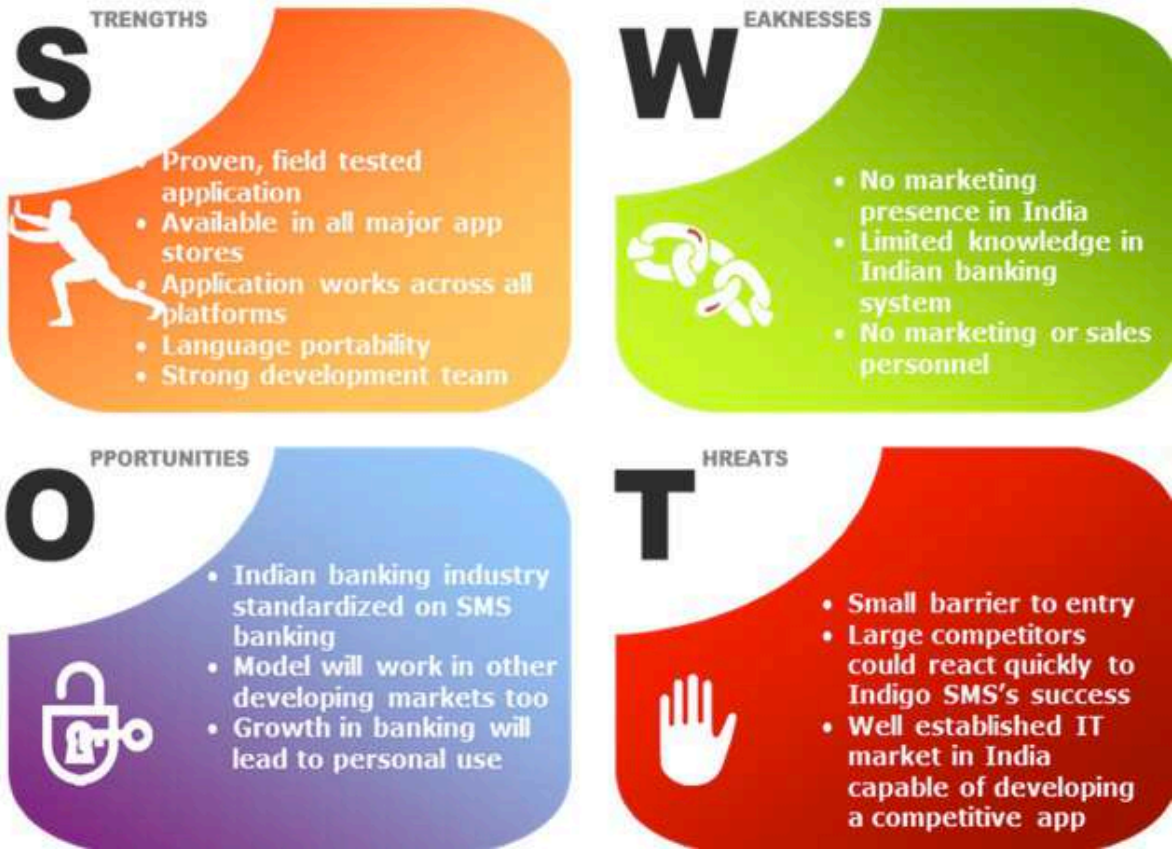
Indigo SMS from Aumne is the solution that the banking sector has been looking for. It provides a mechanism to encrypt all messages exchanged with the customers. It also provides the customer with a mechanism to erase all sensitive SMS messages from their device remotely in case the device is lost or stolen.

Competitive Advantage:

Since the SMS banking phenomenon is relatively new, there is virtually no competition for Indigo SMS. Apps are available from the banks to perform online banking and these transactions are encrypted and secure, but a solution to encrypt SMS messages sent out by the banks does not exist. Aumne has a competitive

advantage because Indigo SMS is already a fully functional application that is available globally and in most app stores.

Aumne needs to leverage its partnership with Telekom Srbija and Century Link when marketing the app to the banks. The fact that these two major service providers have entered into a partnership with Aumne lends tremendous credibility to their product – Indigo SMS.



Marketing Plan

Objectives

The marketing goal is to deliver encrypted SMS messaging to banks as a service to their customers to protect sensitive bank transactions, and to become the leading SMS encryption service provider to banks in India. To start, we recommend marketing Indigo SMS to the urban co-operative banks in one major metropolitan city in India, and establish partnerships with twelve co-operative banks to launch Indigo SMS within the first year.

Product / Service Distribution

Aumne secure SMS is a mature product that has been thoroughly tested before becoming available for download in the app stores. Aumne's Indigo SMS application had to undergo a rigorous acceptance process before gaining acceptance as a partner with major companies. The fact that Aumne has partnered with two major service providers will certainly reduce the barrier to entry into the Indian banking industry.

Branding

Entering the Indian market will require a strong partnership with a local marketing company that is familiar with the Indian banking industry. The marketing firm will assist Aumne in developing an initial strategy to enter the banking industry in India. It will assist Aumne in building a strong brand name. Being the first to

enter this market, Aumne will be a pioneer and will have a unique position in the Indian market.

Pricing

Indigo SMS needs to be priced at a level that is attractive to the banking industry and is profitable for Aumne. Initially, prices need to be set low to attract banks. The price will be a monthly fee to the bank based upon the number of customers using SMS banking.

Promotion & Sales Strategies

Aumne will participate in trade shows such as IBEX India and the International Banking Expo India. The trade shows will develop customer awareness and generate leads for Aumne. Aumne will generate awareness by advertising in the trade show brochures so the executives will be aware of Indigo SMS prior to the show. At trade shows, Aumne will provide live demonstrations of Indigo SMS. Aumne will focus their promotional attention on show attendees by gaining access to the pre-registered mailing list.

Management Plan

Figure 2: Aumne Management Structure - 1st Year

Operations Plan

Locations:

Aumne presently operates from its corporate headquarters and primary location in the United States. Team 5 recommends that Aumne open an office in a metropolitan city in India that it plans on targeting. This office will house the sales and marketing staff that are responsible for implementing Aumne's strategy.

Key Personnel:

Currently, Aumne consists of four individuals. Dr. Suresh Neelagaru is the company's chairman of the board. Dr. Amit Trehan and Mr. Mort Efron complete the board of directors and Mr. Surya Kalavagunta is the company's chief executive officer. Aumne will hire a head of sales and marketing person that will operate out of the office in India. Aumne's three year development plan includes the incremental hiring of eight sales people.

Operating Costs:

Aumne's operating costs primarily consist of the expenses incurred by operating both offices and those expenses generated by its employees. These office expenses include rents, utilities, insurance, maintenance, and supplies. Personnel expenses include compensations, logistics, sales, and supplies. The financial statements in the appendix contain the details regarding these expenses.

Financial Plan / Revenue Growth

The business plan, along with the growth in these markets, will provide Aumne an opportunity to grow its monthly revenue from $11,363 to $306,788 in just two and half years. This results in the Compounded Annual Growth Rate (CAGR) of 273%.

Break-Even Analysis

Investment Cost / Funding Sources

In order to successfully launch Indigo SMS into the Indian banking market, Aumne will need a capital investment of $300,000 over a period of six months to implement the business plan. Aumne does not have a significant revenue stream, nor do they have an available credit line. Therefore, the best option to raise the additional capital will be approaching venture capitalists. Team 5 has personal contacts with a director at BigEar Capital, which is a cross border investment and strategy advisor.

Exit Strategy

With the proposed business plan, Aumne will be able to grow their revenue to $2,931,525 with operating income of $1,503,950 for the year 2014. The valuation at five (5) times EBITDA will be at $7,519,749, offering an attractive exit point.

Risk Assessment and Contingency Plan

External Risks

* Regulation of SMS
* Competition
* Price sensitive market

Internal Risks

* Missed sales forecasts by 50%
* Funding
* Banks are non-receptive to product
* Protection of Intellectual Property

Risk Mitigation Chart

Risk	Mitigation Plan
Government Regulations	Co-operate and comply with the regulatory requirements
Emerging Competition	Continued Innovation, and Client Relationship Management
Price Sensitivity	Negotiations for pricing and increased volume
Funding from Venture Capitalist in India	Seek required funding from original investors
Protection of Intellectual Property	Sign non-compete agreement with development team, Trademark protection
Delays in signing-up with banks	Evaluate pricing and promotions strategies, increase free trial period

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Appendix A

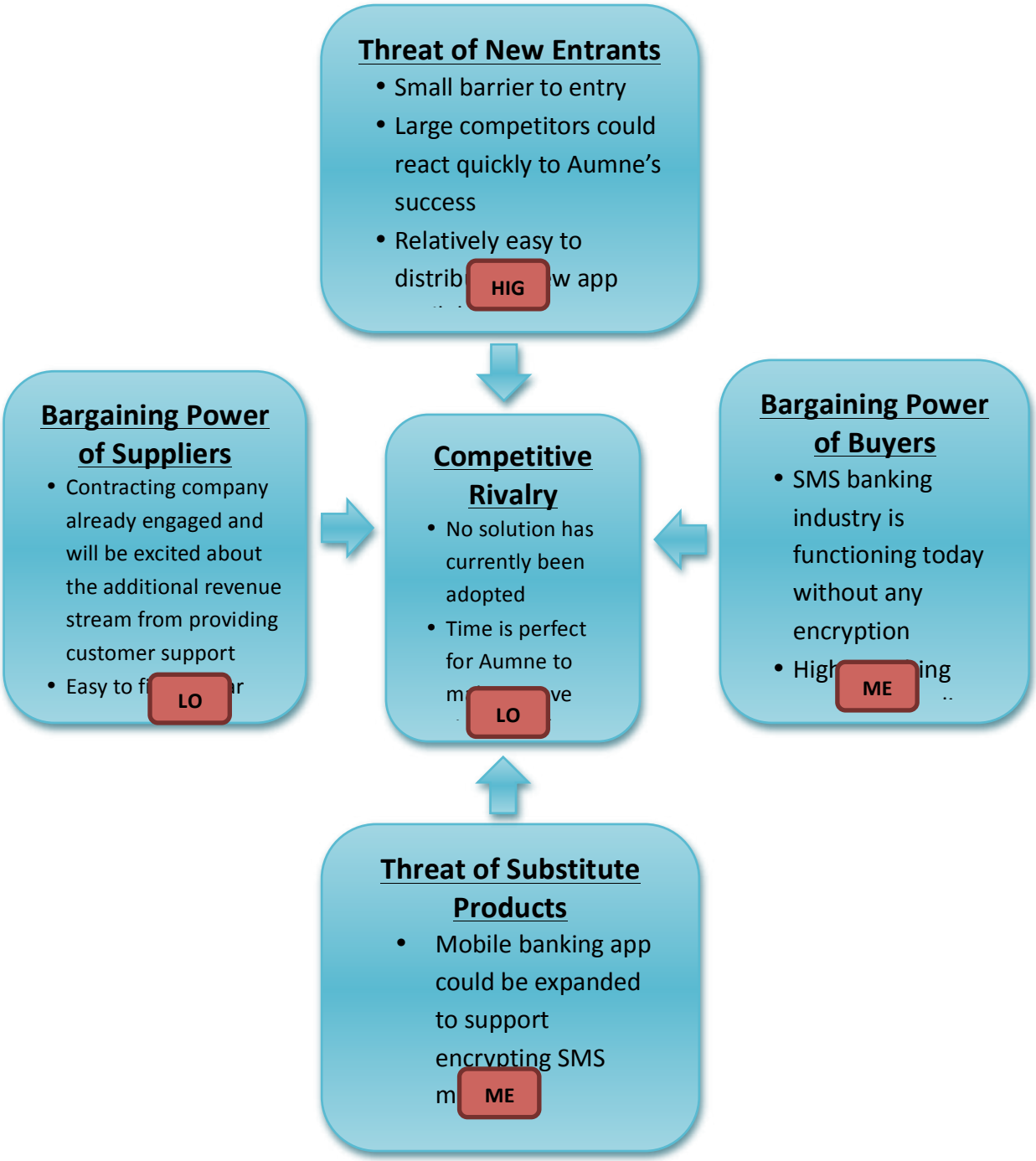

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Figure 3: Aumne Organization Chart – Year 2

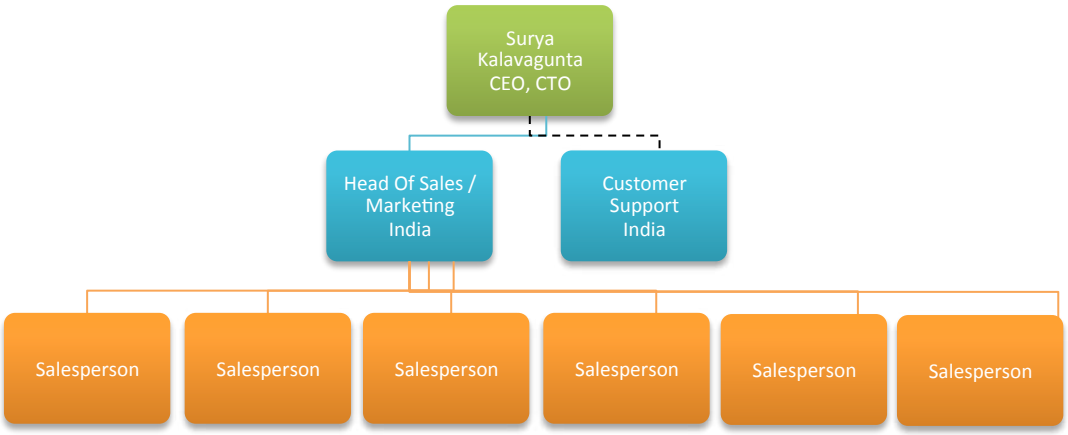
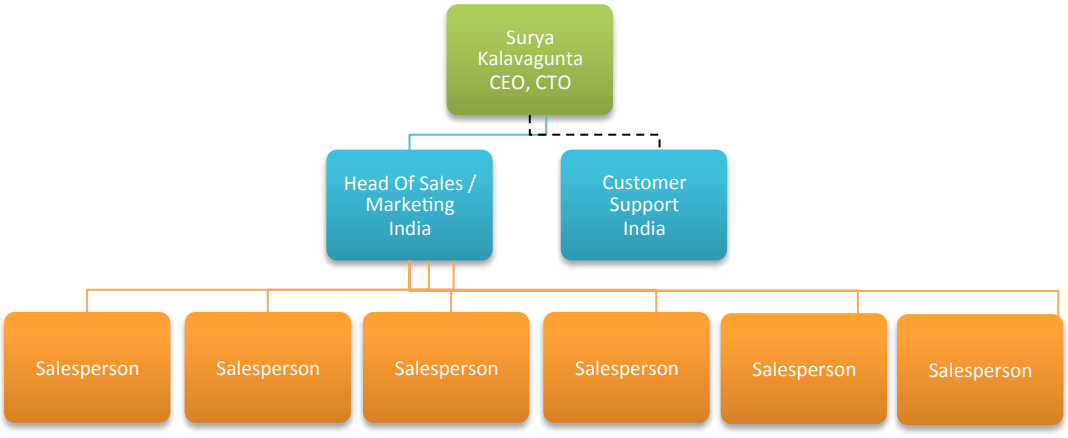


Figure 4: Aumne Organization Chart - Year 3



AUMNE, INC.

PROJECTED BALANCE SHEETS

	DECEMBER 31,		
	2012	**2013**	**2014**
ASSETS			
CURRENT ASSETS			
CASH AND CASH EQUIVALENTS	$ 106,247	$ 230,913	$ 1,252,805
ACCOUNTS RECEIVABLE, NET	34,088	170,438	306,788
OTHER CURRENT ASSETS	183,336	183,336	183,336
TOTAL CURRENT ASSETS	323,671	584,686	1,742,929
PROPERTY, PLANT AND EQUIPMENT, NET	144,831	144,831	144,831
OTHER ASSETS	107,591	107,591	107,591
TOTAL ASSETS	**$ 576,093**	**$ 837,108**	**$ 1,995,351**
CURRENT LIABILITIES			
ACCOUNTS PAYABLE	$ 1,614,250	$ 1,625,050	$ 1,635,850
ACCRUED PAYROLL	17,020	25,039	35,092
ACRUED EXPENSES	285,115	287,460	290,104
BANK LINE OF CREDIT	-	-	-
LEASE PAYABLE	$ 16,441	$ 16,441	$ 16,441
ACCRUED INTEREST	$ 993,692	$ 993,692	$ 993,692
CURRENT PORTION OF LONG-TERM DEBT	-	-	-
TOTAL CURRENT LIABILITIES	2,926,518	2,947,682	2,971,179
LONG-TERM DEBT	-	-	-
VENTURE CAPITAL FINANCING	$ 300,000	$ 300,000	$ 300,000
LOAN FROM STOCKHOLDERS (NOTE 3)	$ 2,770,919	$ 2,770,919	$ 2,770,919
LOAN FROM INVESTORS	$ 115,000	$ 115,000	$ 115,000
COVERTIBLE AND OTHER NOTES PAYABLE (NOTE 2)	$ 2,382,000	$ 2,382,000	$ 2,382,000
PAYABLE - MOBILFISH ACQUISITION (NOTE 4)	$ 700,000	$ 700,000	$ 700,000
TOTAL LIABILITIES	9,194,437	9,215,601	9,239,098
STOCKHOLDERS' EQUITY			
COMMON STOCK	9,252	9,252	9,252
PREFERRED STOCK - SERIES A	2,240	2,240	2,240
STOCK SUBSCRIPTION RECEIVABLE	(108,827)	(108,827)	(108,827)
ADDITIONAL PAID-IN CAPITAL	1,317,510	1,317,510	1,317,510
RETAINED EARNINGS (DEFICIT)	(9,838,519)	(9,598,667)	(8,463,923)
TOTAL STOCKHOLDERS' EQUITY	(8,618,344)	(8,378,492)	(7,243,748)
TOTAL LIABILITIES AND STOCKHOLDERS EQUITY	**$ 576,093**	**$ 837,108**	**$ 1,995,351**

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AUMNE, INC.

PROJECTED STATEMENTS OF INCOME AND RETAINED EARNINGS

	YEARS ENDED DECEMBER 31,		
	2012	**2013**	**2014**
REVENUES			
BANKING AND CONSUMER	$ 68,175	$ 1,295,325	$ 2,931,525
	-	-	-
TOTAL REVENUE	68,175	1,295,325	2,931,525
COST OF SALES	(53,120)	(276,158)	(495,298)
GROSS PROFIT	15,055	1,019,167	2,436,227
	22.1%	78.7%	83.1%
GENERAL AND ADMINISTRATIVE EXPENSES	(357,146)	(505,748)	(662,244)
SELLING EXPENSES	(65,200)	(194,620)	(270,034)
	(422,346)	(700,368)	(932,278)
OPERATING INCOME (LOSS)	(407,291)	318,799	1,503,950
OTHER INCOME (EXPENSE)			
INTEREST EXPENSE	-	-	-
INTEREST INCOME	727	1,004	9,043
	727	1,004	9,043
INCOME (LOSS) BEFORE TAXES ON INCOME	(406,564)	319,803	1,512,993
TAXES ON INCOME	101,641	(79,951)	(378,248)
NET INCOME (LOSS)	(304,923)	239,852	1,134,744
	-447.3%	18.5%	38.7%
RETAINED EARNINGS (DEFICIT)			
BEGINNING	(9,533,596)	(9,838,519)	(9,598,667)
ENDING	**$ (9,838,519)**	**$ (9,598,667)**	**$ (8,463,923)**

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AUMNE, INC.

PROJECTED STATEMENTS OF CASH FLOWS

	YEARS ENDED DECEMBER 31,		
	2012	**2013**	**2014**
OPERATING ACTIVITIES			
NET INCOME (LOSS)	$ (304,923)	$ 239,852	$ 1,134,744
ADJUSTMENT TO RECONCILE NET INCOME (LOSS)			
TO CASH PROVIDED (USED) BY OPERATING ACTIVITIES:			
DEPRECIATION & AMORTIZATION	-	-	-
ACCOUNTS RECEIVABLE AND OTHER	(34,088)	(136,350)	(136,350)
INVENTORY	-	-	-
DEPOSITS	-	-	-
ACCOUNTS PAYABLE, ACCRUED EXPENSES AND OTHER	25,245	21,164	23,498
CASH PROVIDED (USED) BY OPERATING ACTIVITIES	(313,766)	124,666	1,021,892
INVESTING ACTIVITIES			
PURCHASE OF FIXED ASSETS, NET	-	-	-
PROCEEDS FROM SALE OF PROPERTY AND EQUIPMENT	-	-	-
CASH PROVIDED (USED) BY INVEST. ACTIVITIES	-	-	-
FINANCING ACTIVITIES			
PROCEEDS FROM (REPAYMENT OF) LINE OF CREDIT	-	-	-
PROCEEDS FROM ADDITIONAL LONG-TERM DEBT	-	-	-
PRINCIPAL PAYMENTS OF LONG-TERM DEBT	-	-	-
VENTURE CAPITAL FINANCING	300,000	-	-
ADDITIONAL FUNDING FROM INVESTORS FOR OPERATIONS	115,000	-	-
ADDITIONAL PAID IN CAPITAL	-	-	-
CASH PROVIDED (USED) BY FINANCING ACTIVITIES	415,000	-	-
INCREASE (DECREASE) IN CASH	101,234	124,666	1,021,892
CASH			
BEGINNING	5,013	106,247	230,913
ENDING	**$ 106,247**	**$ 230,913**	**$ 1,252,805**

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AUMNE, INC.

SUPPLEMENTAL MATERIAL
ANALYSES OF PROJECTED COST OF SALES

	YEARS ENDED DECEMBER 31,		
	2012	**2013**	**2014**
COST OF SALES			
COST OF SALES	$ 5,400	$ 102,600	$ 232,200
	-	-	-
TOTAL COST OF SALES	5,400	102,600	232,200
LABOR - HOURLY	20,640	94,944	163,776
PAYROLL TAXES	2,064	9,494	16,378
TOTAL LABOR	22,704	104,438	180,154
FACILITY LEASE	24,000	57,600	69,120
MEDICAL INSURANCE	600	1,440	1,728
BUILDING REPAIRS & MAINTENANCE	600	1,440	1,728
EQUIPMENT REPAIRS AND MAINTENANCE	1,200	2,880	3,456
JANITORIAL	300	720	864
REFUSE REMOVAL	300	720	864
UTILITIES	1,200	2,880	3,456
OTHER COSTS	600	1,440	1,728
DEPRECIATION - INFIN EQUIPMENT	-	-	-
	28,800	69,120	82,944
	$ 56,904	**$ 276,158**	**$ 495,298**

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AUMNE, INC.

SUPPLEMENTAL MATERIAL

ANALYSES OF PROJECTED GENERAL AND ADMINISTRATIVE EXPENSES

	YEARS ENDED DECEMBER 31,		
	2012	2013	2014
SALARIES - ADMINISTRATIVE	$ 274,800	$ 369,360	$ 486,408
PAYROLL TAXES	10,540	10,548	11,556
MEDICAL INSURANCE	4,800	5,256	5,568
LIABILITY INSURANCE	6,000	6,180	6,360
WORKMANS COMP INSURANCE	456	504	552
INSURANCE - OFFICERS' LIVES	1,600	1,700	1,800
OFFICE EQUIPMENT RENTAL	1,900	2,700	3,000
EDUCATION EXPENSE	-	-	-
DUES AND SUBSCRIPTIONS	950	1,200	1,800
LEGAL - GENERAL	18,000	36,000	48,000
ACCOUNTING & TAX	9,500	18,000	24,000
EMPLOYEE BENEFITS	1,900	3,000	6,000
401K EMPLOYER'S CONTRIBUTION	-	-	-
OFFICE SUPPLIES & EXPENSE	450	900	1,200
COMPUTER EXPENSE & SOFTWARE MAINTENANCE	1,800	3,600	4,800
TELEPHONE	900	1,800	2,400
UTILITIES	9,000	18,000	24,000
DELIVERY AND EXPRESS	925	1,500	1,800
OTHER ADMINISTRATIVE EXPENSES	925	1,500	1,800
STATIONERY & PRINTING	925	1,500	1,800
MEALS & ENTERTAINMENT	925	1,500	1,800
POSTAGE	925	1,500	1,800
INTERNET ACCESS	925	1,500	1,800
DEPRECIATION - FURNITURE AND EQUIPMENT	-	-	-
MISCELLANEOUS	9,000	18,000	24,000
	$ 357,146	**$ 505,748**	**$ 662,244**

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AUMNE, INC.

SUPPLEMENTAL MATERIAL
ANALYSES OF PROJECTED SELLING EXPENSES

	YEARS ENDED DECEMBER 31,		
	2012	**2013**	**2014**
SALES COMPENSATION	$ 42,000	$ 124,200	$ 174,576
TAXES - PAYROLL	4,200	12,420	17,458
TRADE SHOWS	1,000	4,000	6,000
TRAVEL	6,000	16,000	20,000
LODGING	4,000	12,000	16,000
CAR FARE/RENTAL	1,000	4,000	6,000
ADVERTISING & MARKETING	6,000	18,000	24,000
MEALS & ENTERTAINMENT	1,000	4,000	6,000
	$ 65,200	**$ 194,620**	**$ 270,034**

ANALYSES OF PROJECTED BUSINESS VALUATION

INCOME (LOSS) FROM OPERATIONS	$ (407,291)	$ 318,799	$ 1,503,950
DEPRECIATION	-	-	-
EBITDA	$ (407,291)	$ 318,799	$ 1,503,950
VALUATION AT 5x EBITDA	**$ (2,036,455)**	**$ 1,593,993**	**$ 7,519,749**

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Revenue

	JAN 31, 2013	FEB 28, 2013	MAR 31, 2013	APR 30, 2013	MAY 31, 2013	JUN 30, 2013	JUL 31 2013	AUG 31, 2013	SEP 30, 2013	OCT 31, 2013	NOV 30, 2013	DEC 31, 2013
SALES												
NUMBER OF BANKS PARTNERED	4	5	6	7	8	9	10	11	12	13	14	15
TOTAL CONSUMERS (AVG. 225,000 PER BANK)	900,000	1,125,000	1,350,000	1,575,000	1,800,000	2,025,000	2,250,000	2,475,000	2,700,000	2,925,000	3,150,000	3,375,000
SMS BANKING USERS	180,000	225,000	270,000	315,000	360,000	405,000	450,000	495,000	540,000	585,000	630,000	675,000
REVENUE FROM THE BANKS												
AT THE RATE OF $0.25 PER SMS BANKING COI	$ 45,000	$ 56,250	$ 67,500	$ 78,750	$ 90,000	$ 101,250	$ 112,500	$ 123,750	$ 135,000	$ 146,250	$ 157,500	$ 168,750
REVENUE FROM CONSUMERS												
AT THE RATE OF $0.25 PER CONSUMER	$ 450	$ 563	$ 675	$ 788	$ 900	$ 1,013	$ 1,125	$ 1,238	$ 1,350	$ 1,463	$ 1,575	$ 1,688
ASSUMPTION: 1% FULL PRODUCT CONVERSION RATE												
Revenue - $	$ 45,450	$ 56,813	$ 68,175	$ 79,538	$ 90,900	$ 102,263	$ 113,625	$ 124,988	$ 136,350	$ 147,713	$ 159,075	$ 170,438

Cost of Sales

TESTING AND QUALITY CONTROL												
COST/6000 USERS	$ 3,600	$ 4,500	$ 5,400	$ 6,300	$ 7,200	$ 8,100	$ 9,000	$ 9,900	$ 10,800	$ 11,700	$ 12,600	$ 13,500

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ANALYSIS OF COMPENSATION - 2012

						Rate	7.650%	0.380%	4.00%	50/50	0.0%		
						Ceiling	$ 102,600		$ 8,500				
Description	**No. of**	**Hourly Rate**	**Hours per Week**	**Monthly Total**	**Annual Total**		**FICA**	**Worker's Comp**	**Unemployment Taxes (amort over 3 mos.)**	**Medical Insurance**	**401K Match**		
CSR/Support Personnel (India)	1	$ 20.00	40	$ 3,440	$ 41,280		$ -	$ -	$ -	$ -	$ -		
				$ 3,440	$ 41,280		$ -	$ -	$ -	$ -	$ -		
Headcount													
				Monthly	**Annual Salary**								
CEO (US)	1			$ 10,000	$ 120,000		$ 765.00	$ 38.00	$ 113	$ 400	$ -		
Product Developers (India)	3	$ 25.00	40	$ 12,900	$ 154,800								
Total Administrative Salaries				$ 22,900	$ 274,800		$ 765.00	$ 38.00	$ 113	$ 400	$ -		
Sales/Marketing													
Sales/marketing Head (India)	1			$ 3,000	$ 36,000		$ -	$ -	$ -	$ -	$ -		
Sales/marketing staff (India)	4			$ 4,000	$ 48,000		$ -	$ -	$ -		$ -		
				$ 7,000	$ 84,000		-	-	$ -	$ -	$ -		
Total Compensation				$ 33,340	$ 400,080		$ 765.00	$ 38.00	$ 113	$ 400	$ -		
Total Headcount	10												

ANALYSIS OF COMPENSATION - 2013

						Rate	7.650%	0.380%	4.00%	50/50	0.0%		
						Ceiling	$ 102,600		$ 8,500				
Description	**No. of**	**Hourly Rate**	**Hours per Week**	**Monthly Total**	**Annual Total**		**FICA**	**Worker's Comp**	**Unemployment Taxes (amort over 3 mos.)**	**Medical Insurance**	**401K Match**		
CSR/Support Personnel (India)	2	$ 23.00	40	$ 7,912	$ 94,944		$ -	$ -	$ -	$ -	$ -		
				$ 7,912	$ 94,944		$ -	$ -	$ -	$ -	$ -		
				Monthly	**Annual Salary**								
CEO (US)	1			$ 11,000	$ 132,000		$ 841.50	$ 41.80	$ 113	$ 425	$ -		
Product Developers (India)	4	$ 28.75	40	$ 19,780	$ 237,360								
Total Administrative Salaries				$ 30,780	$ 369,360		$ 842	$ 42	$ 113	$ 425	$ -		
Sales/Marketing	1			$ 3,450	$ 41,400		$ -	$ -	$ -	$ -	$ -		
Sales/marketing Head (India)	6			$ 6,900	$ 82,800		$ -	$ -	$ -		$ -		
Sales/marketing staff (India)				$ -	$ -		$ -	$ -	$ -		$ -		
				$ 10,350	$ 124,200		-	-	$ -	$ -	$ -		
Total Compensation				$ 49,042	$ 588,504		$ 841.50	$ 41.80	$ 113	$ 425	$ -		
Total Headcount	14												

Assumption:
10% Annual Pay Increase in US
15% Annual Pay Increase in India

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IJCSNS International Journal of Computer Science and Network Security, VOL.9 No.6, June 2009

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A Comparison of Profitability and Environmental Impacts of Two Feeding Systems on New Zealand Dairy Farms

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INTRODUCTION

This pilot study investigates the impacts of two dairy farm feeding systems on the environment and farm profit, and why farmers chose to implement these feeding systems. A measurement metric considering production and the environment, and secondly profit and the environment, is developed. This metric models the cost of production against the cost to the environment as an overall measurement of farm efficiency.

METHOD

A mixed method of qualitative and quantitative data was used.

ANALYSIS

Two low and two high supplementary feeding farmers were interviewed from the North Island of New Zealand. Quantitative data relating to production, environment and profitability were obtained from each farmer. Nitrogen loss was chosen as an environmental metric as it has a key impact on both farm production and the environment. Interview data were analysed using NVIVO and manual coding using a thematic method. OVERSEER® Nutrient Budgets were used to extract environmental data. Production and financial data were extracted via survey questions from farms records.

RESULTS

Our analysis shows that in the 2013/14 season, high supplementary feeding farms returned higher margins per hectare and less nitrogen loss per dollar of margin. These results are new to the literature, and stand in contrast to the promotion of least cost systems in New Zealand by industry extension services. Farmer's choices of systems were primarily driven by a strong personal belief that the feeding system they chose was the best system for their goals. If high input systems are more efficient and regulations drive farmers to these systems, it is important that both farmer and policy makers understand the cost and potential effectiveness of these changes.

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Introduction

The New Zealand dairy industry has undergone rapid expansion in recent decades, with total milking cow numbers increasing from 3.5 million in 1992 to 6.7 million in 2014 (Statistics New Zealand, 2015). The agricultural industry, in particular the dairy industry, is a major contributor to total export revenue. The biggest issue currently facing New Zealand's water resources is the loss of water quality caused mainly by nutrient run-off (Kingwell, 2002; Tadaki, Brierley & Fuller, 2014). Strategies to improve production whilst minimising environmental impact are imperative to satisfy the government's objectives and the growth of the sector. The focus is on the dairy industry; consequently regulatory constraints on water and nutrient management are likely to increase. This is despite industry and farmers attempts to improve their resource use efficiency (Beukes, Scarsbrook, Gregorini, Romera, Clark & Catto, 2012).

New Zealand, historically a low cost producer of dairy products, is reducing its competitive advantage as on-farm production costs are raising faster than a number of our pastoral-based rivals such as Argentina (Coriolis Research, 2010). As the dairy industry seeks to increase production by farming more intensively, a negative effect is more nitrogen leaching and phosphorus runoff. Reduction of nutrient loss into waterways is important in order to reduce the declining water quality. Much of the nitrogen loss is due to continuing intensification of dairying (The Ministry for the Environment, 2010). Sustainable management of natural resources is important

for trade negotiations (Romstad, Vatn, Rørstad & Søyland, 2000; Vatn, 2002) and the clean green (Cummings, 2010; Jay, 2011) image of New Zealand's milk products (OECD, 2001). Thus, NZ farmers overall face two important issues: (1) cutting their costs further as a result of a volatile global economic environment, and (2) demonstrating greater value for NZ farm products, where value also includes the environmental dimension.

The National Policy Statement for Freshwater Management (NPS-FM) (Ministry for the Environment, 2014) implemented in 2014 has implications for farmers. They are now accountable to the community and the standards that these communities set for their water bodies. Restriction of nitrogen losses in other countries threatens the future economic sustainability of dairy farms (Bhuyan, 2009). New Zealand should utilise learnings from other countries.

There is a potential mismatch in the fact that dairy farm performance is measured by standardised metrics, which are easy to compare for farm sales or financial institutions, for example kg milk solids per hectare. These metrics do not take into account efficiencies and environmental impacts critical for long-term sustainability of the industry. Potentially some farms could be performing well in production and economic outcomes, but poorly in the environmental outcomes. Healthy economic and environmental outcomes are important for the sustainability of the dairy sector. Nitrogen management is linked with production; therefore both inputs and outputs

are important. Targeting nutrient inefficiencies could be assisted by individual farm analysis using the triple metric of environment, production and profitability. The primary purpose of the study is to investigate the impacts on profit and the environment of different feeding strategies. The secondary purpose is to investigate farmers' awareness of the inter-relationship of these factors and to discover the drivers for their choice of feeding systems. A metric which farmers and regulators can accurately assess the profitability and environment together could help farm efficiencies.

The hypothesis is that well-run high input systems will result in more milk produced per unit of nitrogen leached. High input systems result in a greater degree of flexibility to mitigate environmental variability, i.e. drought or extreme wet weather. These systems will result in lower fertiliser needs as nutrients are imported onto farms via the feed. This could result in lower nitrogen leached per hectare if the feed balance is correct (energy to protein ratio). A key driver to cow efficiency, the production relative to feed consumed, is the concept of nitrogen balance. It is hypothesised that this efficiency can be obtained without losing New Zealand dairy farmers' competitive advantage, which is a low-cost pasture grazing system. There is a need for the three parts of the farm output triangle (production, financial and environmental outcomes) to meet. Figure 1 demonstrates the concept that is proposed in this study as a measurement tool.

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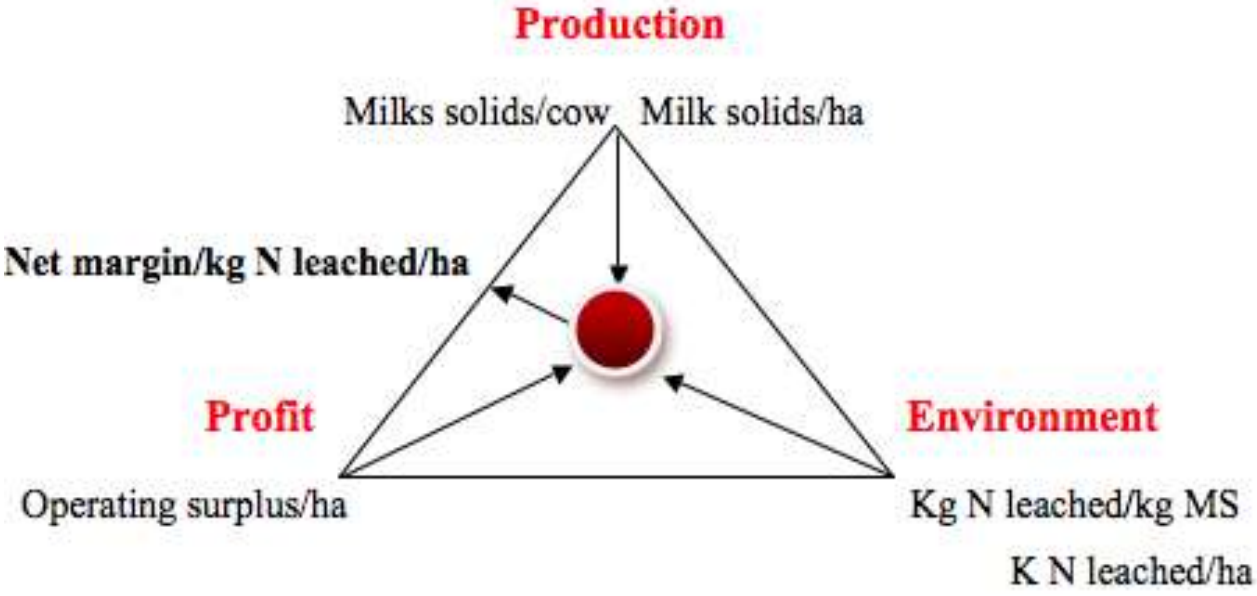

Figure 1. Three point measurement: production, environment and profit

The study is an investigation into the difference in profitability and environmental impacts on two feeding systems. These systems are: low volume and value system, consisting of 86-100% high protein grass or forage (Dairy N.Z. 2015), or the high volume and value system with 20-55% of feed brought onto farm. The volume and value term is used, as a proportion of these feeds used by the High systems, include starch-based components (New Zealand Feed Manufacturers Association, 2014).

Adding these starch based feeds will affect nitrogen balance in the cow and has the potential to improve efficiency (Broderick, 2003). Although differences in

efficiency have been reported anecdotally, actual on farm comparisons across multiple N.Z. farms are apparently lacking (Anastasiadis & Kerr, 2013). This study on the impacts on profit and environment across these feeding systems could help quantify the value proposition of energy from supplementary feed. It could help shift the focus beyond production measurements to target environmental and profit efficiencies for individual inefficient farmers. Identifying farms that are more efficient in terms of nutrient use could be advantageous to assist the industry to meet restrictions on environmental losses.

Literature review

Dairying is an important contributor to New Zealand's exports (The Treasury, 2015). Historically New Zealand is a low cost producer of dairy products. Its perennial ryegrass based systems are a key competitive advantage (Pembleton, Tozer, Edwards, Jacobs, & Turner, 2014). Competition from South American countries now poses a threat to the cost competitiveness of New Zealand dairy products (Coriolis Research, 2010). The majority of our dairy produce is exported, due to our small domestic market (Fonterra, 2015). Some international markets demand that the agricultural goods they purchase be produced without harming the environment. The consumer demand for food produced by environmentally friendly systems is predicted to grow (Kingwell, 2002; Ballingall & Lattimore, 2004). Crittenden, Crittenden, Ferrell, Ferrell and Pinney (2011) reinforce the importance of sustainability.

The New Zealand brand for agricultural production is “clean and green”. Ballingall and Lattimore (2004) point out that in order to protect environmental values New Zealand farmers need to adjust production systems. Pembleton, et al., (2014) state: “farms are getting closer to their economic optimum level of pasture consumption” (p.206). To remedy this, an increase in inputs and intensification is occurring. The result is an increase of stocking rates (number of animals per hectare), yields, farm fertiliser, pesticide and stock feed (MacLeod & Moller, 2006). Two ways to reduce nutrient loss are targeting inefficient farms and wholesale adoption of best farm practise (Ridler, Anderson & McCallum, 2014). Targeting nutrient inefficiencies could be assisted by individual farm analysis using the triple metric of environment, production and profitability.

Ridler, et al., (2014) advocate measurement on an individual farm basis. New Zealand research has used models or estimations on the costs of mitigation technologies. Anastasiadis and Kerr (2013) show there are limitation of these strategies, as farms are treated as the same and costs are peculated not measured. A shift from the current focus on production per hectare through high stocking rates is suggested by Anastasiadis, Kerr, MacKay, Roygard and Shepherd (2012). Rather a management approach with reduced stocking rates and use of strategic supplements to enhance production both per cow and per hectare versus an increased stocking rate strategy is suggested. An increase in simulated nitrogen

losses under grazing is found with increasing stocking rates (McGechan & Topp, 2003).

Nitrogen management is linked with production therefore both inputs and outputs are important. Most of the nitrogen leached is found in urine patches (Edwards, De Ruiter, Dalley, Pinxterhuis, Cameron, Bryant, Di1, Malcolm & Chapman, 2014; Hills, McLaren, Christie, Rawnsley & Taylor, 2014). The number of urine patches and the concentration of nitrogen in each urine patch are key factors determining the amount of nitrate leached (Li, Betteridge, Cichota, Hoogendoorn & Jolly, 2012). The number of urine patches could be influenced by stocking rates. The concentration of nitrogen in each urine patch can be influenced by diet. Nitrogen balance measurements can be used to determine nitrogen efficiency (Kauffman & St-Pierre, 2001). Nitrogen efficiency decreases with increasing addition of crude protein (CP). Improved milk yield, efficiency and decreased excretion of urinary nitrogen, is found with an increase in dietary energy (Broderick, 2003). The form of nitrogen excreted can be reduced by changing the feed concentrate composition, its energy type degradation and protein degradability (Kebreab, France, Beever, & Castillo, 2001). Mulligan, Dillon, Callan, Rath and O'Mara (2004) confirm the ability to partition to faecal nitrogen rather than urinary nitrogen using high concentrations of fermentable organic matter and low concentrations of protein. Castillo, Kebreab, Beever, Barbi, Sutton,

Kirby, & France (2001) confirmed this can be done without affecting animal performance.

Farm systems as well as a best farm practise can improve efficiency and profitability whilst reducing nutrient leaching. Implementation of best management practices were shown to positively affect net farm income in the UK (Valentin, Bernardo, & Kastens, 2004). In New Zealand, management practices and farmer's skills have a large role to play in improving farm practice. Implementing practices that are currently in commercial use could reduce nitrogen leaching by 30% (Anastasiadis & Kerr, 2013). Differences in management are a key determinant of efficiency (Edmunds, Staines, McDonnell, Lucey Paszkudzka-Baizert & Morris, 2014) and profitability (McDonnell, Staines, Edmunds, & Lucey, 2014). Minimising risk and managing farm debt level were also key factors in farm profitability.

Research method

The goal of the research is exploratory, based on case studies of two dairy feeding systems. Two farms from each type of system were analysed resulting in four data sets. A mixed method was used via initial and follow-up interviews. A survey questionnaire was used to gather the data. The interview questions were constructed to get an understanding of the internal and external drivers affecting farmer's choice of feeding systems. Survey questions extracted production inputs,

outputs, on-farm inefficiencies, and actual environmental data, such as soil type, rainfall, nutrient inputs and modelled nutrient losses. Financial data regarding costs of inputs and subsequent profit were obtained from participants' on-farm and farmers' accounting records. These questions enabled financial and environmental cost calculations. All interviews were transcribed and analysed using the qualitative analysis software NVIVO and manual coding to a thematic analysis. OVERSEER® Nutrient Budgets were used to extract environmental data. Production and financial data were extracted via survey questions about farms records. The double metric introduced in this study pair the total kg of nitrogen leached per hectare with margins per hectare. This metric demonstrates the modelled cost of production against the cost to environment as a measurement of efficiency.

Two cases of low volume & value feeding systems (Low) and two high volume & value feeding systems (High) were analysed. In New Zealand, systems are classified by volume and period of supplementary feed. Of the Low systems, one farm had between 4% and 14% of feed brought onto it, while the other farm had between 10% and 20%. The two High system farms had 20-30% of feed brought on and 25-55% of feed brought on (Dairy NZ, 2015). This study used the additional term value to account for feed balance. The rationale for two of each is to get a range of proficiency of farmers to allow a more representative overview. The participating farms from the Waikato region were located within a 60 km

radius to reduce variation in soil type and climate. This pilot study was limited to four participants due to time, resource and confidentiality reasons. The complexity of the questions, the need to run OVERSEER® Nutrient Budgets (2105) and extract full financial data from the business owners meant it was not possible to increase the sample size.

Results

Table 1. Farm resource details

Production	Farmer A Low	Farmer B Low	Farmer C High	Farmer D High
Total ha	264	290	170	58
Cows	920	900	580	150
Stocking rate/ha	3.49	3.1	3.4	2.6
Labour units	3.5	4.5	3	1.5
Ratio labour/ha	75	65	57	39
Ratio cows/labour unit	263	200	193	100

Differences between all farms in land areas, cow numbers and labour units exist. These differences also extend to carrying capacity, grass growth temperature and rainfall amongst other factors. The number of farms held by the owner would

determine the ability to share labour across farms. Lifestyle choice had implications for the number of labour units per cow as demonstrated by Farmer D. Calculating labour units on a per hectare basis allows a measure of standardisation across some of these areas. Restricting farms to a tight geographical area meant most of the physical factor differences would be minimised.

We firstly ask: What are the impacts on profitability of low volume & value (Low) supplementary feeding systems versus high volume & value (High) supplementary feeding on New Zealand dairy farms?

Table 2. Financial data for all four farmers on Low and High systems

Financial	Farmer A Low	Farmer B Low	Farmer C High	Farmer D High
Cost of imported feed	$50,240 ($55/cow)	$285,510 ($317/cow)	$964,558 ($1663/cow)	$103,050 ($687/cow)
Cost of animal health treatments	$30,205 ($33/cow)	$40,711 ($45/cow)	$73,563 ($127/cow)	$7,998 ($53/cow)
Net margin/kg nitrogen leached/ha	$56	$52	$63	$138
Feed system capital costs	0	0	$281,000	$27,208
Feed system maintenance cost	0	0	$20,000	$500
Gross margin/ha	$3,815	$3,298	$4,947	$4,736
Net margin/ha	$2,241	$2,727	$4,091	$3,593

In the 2013/14 year, both High systems outperformed the Low systems on gross and net margin per hectare. The animal health costs of these two farms were 131% higher on average than the Low farms. The average feed costs were more than five times higher than Low farms. Milk production per hectare was an average of 50% higher and milk production per cow was 62% higher. When averaged, the Low systems achieved 34% less profit than the High systems. High systems achieved higher return on both land and cows.

Table 3. Production data for all four farmers on Low and High systems

Production	Farmer A Low	Farmer B Low	Farmer C High	Farmer D High
Kg MS/cow	282	347	548	470
Kg MS/ha	999	1040	1870	1217

Secondly, what are the environmental impacts of these feeding systems?

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Table 4. Environmental data for all four farmers on Low and High systems

Environmental	Farmer A Low	Farmer B Low	Farmer C High	Farmer D High
Nitrogen fertiliser kg/ha	194	94	91	124
Kg nitrogen in imported feed/ha	10	77	179	116
Annual rainfall (mm)	1258	1500	1500	1400
Stocking rate/ha (cows)	3.49 (920)	3.1 (900)	3.4 (580)	2.6 (150)
Soil types	Taupo Pumice	Tirau Ash*	Tirau Ash*	Taupo Pumice
Total kg nitrogen leached per ha	40	52	64	26
Total kg of nitrogen leached per kg milk solid	0.040	0.050	0.034	0.021
N use efficiency (%)	30	29	34	30
Net margin/kg nitrogen leached ($/ha)	56	52	63	138

*Modelled change from Tirau Ash to Taupo pumice made no difference to environmental outcomes (Farm B & C)

Nitrogen leached per hectare ranged from 26 kg/ha for High Farmer D to 64 kg/ha for High Farmer C. These differences are due to differences in stocking rate, number of animals grazed off over the winter period and the amount of nitrogen brought onto farm via fertiliser and feed. Modelled nitrogen leached from Low Farmers fell between the High Farmers range. Nitrogen efficiency ranged from 29% (Low) to 34% (High). When the N loss was paired with production data, i.e. kg of milk solids High farms outperformed both Low farms. High average was 0.028 kg versus 0.045 kg Low average a difference of 60%. When N loss was paired with net margin, both High farms outperformed Low farms by an average of 86%. These figures show that for net margin earned per kg nitrogen lost, High outperformed Low. Within each of Low and High systems, there was a difference in profitability against nitrogen leached.

The sum of the nitrogen introduced from fertiliser and feed, 194 kg/ha and 10 kg/ha respectively, was lowest on Low farm A when compared to High farms (124 kg/ha & 116 kg/ha). Despite this the nitrogen leached/ha was considerably higher on the lowest of Low farms at 40 kg N/ha versus lowest of High Farm D at 24 kg N/ha. It can be assumed that the higher stocking rate on High Farm A had a significant effect on the nitrogen leaching (Anastasiadis, et al., 2012; McGechan & Topp, 2003). The effect of stocking rate is demonstrated in the difference in leaching between Low Farmer A, with a stocking rate of 3.5 cows/ha, versus 2.6 cows/ha of High Farmer D.

Thirdly, how do the above factors and other drivers affect the farmer's decisions on feeding systems?

Efficiency and systems

The two themes of efficiency and systems intertwined as the farmers spoke about efficiency in relation to their own feeding system. Each of the farmers saw their own systems as efficient. All the farmers believed utilising grass was a driver for efficiency, but perceived this from different angles.

Low Farmers believed they achieved maximum grass utilisation by consuming all the grass grown. The focus was on land production, not cow production, for Farmer A. To prevent loss of cows or "cow wastage" Farmer B adjusted his system to alleviate pressure on young cows. High Farmers saw feed as a way to manage the pasture, or supplement the grass during times of deficit. One farmer felt he was growing more pasture due to having other feed available. The additional supplementary high-energy feed had a positive effect on land fertility and reduced fertiliser costs. The return on land was higher as more milk solids were achieved from the same land. This belief was validated by milk production data, which had the highest milk production per hectare. Farmer D stated his in-shed compound feeding system was simple and non-labour intensive.

Control

Cost control was a focus for both Low Farmers. Feed was added only when necessary. Farmer A said he had performed a benchmarking exercise against other farms in the area, and although his income per hectare was $1,000 lower than the other farms, his profit was $2,000 higher due to the low cost system. Low Farmers sought to maximise their return per hectare – land being the more expensive asset. One admitted that at times cows could be under-fed on this system. The focus for High Farmers was to mitigate negative climatic impacts, particularly drought.

Control feed

Destocking was a way to cope with feed fluctuations on Low Farms. They used discontinuation of milking or 'drying off' early as strategies to cope with extreme climatic challenges, such as drought. Adjusting the system to milk younger (first and second calvers) cows once a day, used to mitigate loss of income from cows under pressure.

Return on the cow was the focus for the High Farmers. They viewed bought-in feed as a method for control over weather, feed volume and the cow. Feed gave the High Farmers the ability to continue production through the dry months and take advantage of the grass growth when it commenced. Farmer C acknowledged he had higher capital costs and feed costs were justified by the higher returns his system gave.

Whilst Low Farmers did not mention feed balance, both High farmers placed an emphasis on this. Farmer C focused on managing the rumen and monitoring the urine pH and dung, both areas affected by feed balance. Farmer D focused on the right feed for the right time of year.

Management

Management ability was a strongly emphasised theme for both systems. Low Farmer A felt sticking to a feed plan required discipline and good grass management skills. It was getting harder and harder to find the people with the right skills. The two Low farmers had different attitudes towards their systems. One was primarily profit focused stating that only a profitable farms could implement suitable measures for improving environmental outcomes. The other considered animal and environment aspects equally important and closely associated to profit.

High Farmers spoke about passion, strategic planning and the knowledge to choose the right type of feed for the time of year. One stated a good farmer would be profitable in either a Low or a High input system. The rumen (cow's first stomach) and cow management was a key focus for Farmer C.

Market

Low Farmer A felt milk price as a commodity was at the mercy of the market to dictate the price and therefore had a large impact on farm. The farmer's sustainable system had no impact on this price. For High Farmers the pay-out was the biggest factor farmers attributed to profitability. In a low pay-out year, they were forced to feed even if it was unprofitable.

Regulation

Low farmers felt if they were forced to reduce their stocking rate this could have a significant detrimental financial impact on farms. High Farmers did not refer to the effect on profitability by potential regulation.

Discussion

Profit

In the season of June 2013 to May 2014 at a pay-out of $8.30, High Farmer C who operated a feed pad system was the most profitable. This farmer was 12% more profitable than the in-shed compound feed high system. Low Farmer A achieved only 55% of Farmer C's profitability. Low Farmer B achieved 66% of the Farmer C's high input system. When averaged, the Low systems achieved 34% less profit than the High systems.

A key reason for this increase in profitability could be attributed to higher production both per cow and per hectare on High Farms. Higher production from both assets, cows and land results in fixed costs spread across a greater volume of milk. The second factor in this was a high milk pay-out season. The maintenance requirements of the cow and land were a smaller proportion of the return for that asset. In this year, this challenged Low Farmer A's comments that per hectare return was more important than per cow return. The third factor could be the poor feed balance and low efficiency feeds, e.g. palm kernel extract (P.K.E). Low Farmer B had the lowest efficiency based on cost/volume of imported feed versus production.

This farm imported 1.27 t of feed (forage and grains) per cow in comparison to the 127 kg, 3.53 t and 2.53 t of the other farms. Eighty percent of the imports were P.K.E. The importance of feed balance is identified in the literature by Ridler, Anderson and Fraser (2010); Anderson and Ridler (2010); Beukes, Gregorini; Romera, Levy and Waghorn (2010); Kaur, Clark, Millapan, Horadagoda, Golder, Kerrisk, Garcia and Islam (2014) and Moate, Williams, Deighton, Wales and Jacobs (2014). Although Farmer A appears more efficient, grazing 700 cows off-farm for a two-month period is equivalent to an additional 500 t of brought-in feed. The milk price is the critical factor influencing profitability. According to the Dairy NZ economic survey (2012-13) the dairy pay-out trend has increased steadily in the last 50 years. There was a higher rate of increase per kg milk solids

between 1963-1988 ($0.19 ± $0.03), than 1988-2012 ($0.08 ± $0.05). There was marked increase in volatility during the last 25 years in particular the last decade. This increased the risk to farm profits.

Environment

The effect of stocking rate is demonstrated in the leaching difference between Low Farmer A with a stocking rate of 3.5 cows/ha and 2.6 cows/ha of High Farmer D. The lowest total nitrogen introduced from fertiliser and feed (194 kg/ha & 10 kg/ha) was from Low Farmer A. The highest was from Farmer C with 124 kg/ha and 116 kg/ha, respectively. Despite this, the nitrogen leaching per ha was considerably higher on Low Farm A at 40 kg N/ha versus High Farm D at 24 kgN/ha. Anastasiadis et al. (2012) and McGechan, and Topp (2003) attribute high stocking density to higher leaching loss. The farms had the same soil type and High Farmer D had slightly higher rainfall.

The second reason for the difference in leaching is the fate of nitrogen brought on by feed. Nitrogen or protein from supplementary feed are partitioned to dung, which leaches less than nitrogen from grass, which is partitioned to urine (Kebreab, France, Beever. & Castillo, 2001; Mulligan, Dillon, Callan, Rath, & O'Mara, 2004). The efficiency of Farmer A versus D is demonstrated by the margin/ha achieved and the net margin per kg nitrogen leached. Farmer A's net margin was $56/kg N versus $138/kg N for Farmer D. This effect was proposed by

Anastasiadis et.al, (2012) who advocated lower stocking rates and use of strategic supplements to enhance production. Both High Farms showed higher per cow and per hectare production than Low Farms.

Higher milk yield in high input systems is supported by several studies (Kaur et al., 2014 and Moate et al., 2014). There is a difference in capital costs between High systems. High Farmer C used a feed pad system with capital cost of $281,000 and $20,000 annual maintenance cost. The capital cost of Farmer D's in-shed system was $27,000/annum and a $500/annum maintenance cost. There are other running cost considerations for the feed pad system, including tractor and labour costs. Reduction of nitrogen leaching could be achieved through improving nitrogen balance, which could achieve better nitrogen utilisation and ammonia cycling in the cow. This can be achieved by optimization of animal feeding and management. This has been demonstrated by several studies. Broderick (2003) showed decreasing nitrogen efficiency with increasing crude protein (CP) Broderick and Radloff's (2004) study with maize silage (low protein, high energy) showed a 25-30% increase in nitrogen utilization. In a subsequent study Broderick, Luchini, Reynal, Varga and Ishler (2008) showed replacing starch with sugar (molasses) improved production by increasing dry matter intake and reduction in urinary excretion of urea-nitrogen.

Farmer's Choice

Grass utilisation was the core focus of both groups. Pasture utilisation and management, with or without feed, remains central to New Zealand dairy production systems. High Farmers facilitated the control of seasonality through the introduction of supplementary feeds. Climatic conditions caused Low Farmers to cease production earlier in the season or put extra pressure on cows in drought or time of feed shortage. This could become an animal welfare issue.

One of the Low Farmers expressed this as a concerning but inescapable part of the Low system. As tourists could view this unfavourably, it is also a risk factor for the industry. Low Farmers focused on the control of costs. Cost control and debt management are cited in the literature as important factors affecting farm profitability (Bhuyan, 2009).

There was an understanding that the three factors, animal, profit and environment, were linked; however there was a difference as to what the critical starting point should be. Some farmers felt that profit was the most important as only then could an investment be made in better environmental practices. Another farmer felt that the environment had to be the starting point as degradation of resources would affect the ability to farm.

The fact that feed balance was only referred to by High Farmers demonstrates an education and information gap. Nitrogen leaching can be reduced by optimization

of animal feeding and management, feeding high energy and low protein supplements to complement the grass diet (Vérité & Delaby, 2002). There is potentially scope to improve efficiency across all systems via education in this area. All farmers agreed management skill and passion were critical factors in the profitability equation. Recruitment and training of highly skilled people should be the focus of educators and extension agencies in order to improve the industry.

Farmers felt a lack of control over the market; as a commodity product the market dictates the milk price. Although the literature referred to the potential negative effects of regulation on profit and farm survival (Parsons, 2002; Bhuyan, 2009), this is an area of risk to the industry and could be investigated in further studies. One High Farmer felt they were being forced to intensify systems, in order to be more profitable and have less environmental impact. Farmers could be driven to High systems to meet regulation guidelines. Although intensification had no effect on the price farmers would receive for their product, it could affect the overall market supply and therefore the price. In addition the maintenance of the "clean, green, healthy" perception was critical in defining New Zealand produce in the market. The surveys showed all farmers felt that management was a key factor in profitability regardless of the feeding system. This view was confirmed by several studies. Edmunds, et.al, (2014), McDonnell, et.al, (2014) and Fox, Rasmussen, Pitt and Hanchar (1996) found management was the key determinant in efficiency and profitability.

All farmers agreed that the choice of the system came down to a personal decision. This was based on their passion and personal beliefs. If anything restricted a farmer's ability to swap systems it was the lack of desire to invest the capital for such systems. The extra capital would increase debt levels and interest costs. Once the expensive infrastructure was installed, there was a commitment to utilise it. If installation of the infrastructure and commitments to labour to run feedpad systems were made at the peak of the cyclical pay-out this could mean several tough years ahead. Although in-shed feeding systems require less capital and labour and therefore afforded a greater degree of flexibility, the cows would be conditioned to receiving feed. Whilst a reduction in the amount of feed is possible, cows require time to adapt to full systems changes

There is a significant amount of capital already tied up in a dairy farm. Return on this capital in some years was not very attractive when compared to other investment types. The second reason for a lack of desire to change was to keep the system simple to run, as they relied on people to manage these farms. People with the right skill set were getting harder to find.

The best source of information for farmers did not come from industry extension bodies. The farmers in this study from both systems rated this extension service poorly. A better source of information was observing and benchmarking off successful experienced farmers. They felt fertiliser companies should be promoting

best use of products as part of their stewardship and should take an active role via media, field days, and one-on-one advice, on-farm.

Stewardship was important to all farmers. This stewardship extended beyond the land to animal, staff and self-well-being by High Farmer C. This encompassed the social values and goals discussed by Jay (2007). Brodt, Klonsky and Tourte (2006) discussed three management styles- Environmental Stewards, Production Maximisers and Networking Entrepreneurs. The stewardship type of management was also confirmed by Walter (1997) and Fairweather and Keating (1994). Some of these styles were observed in the farmers involved in this study. Farmer A from the Low system was a Production Maximiser or Dedicated Producer. His focus was on production and profit.

Environmental stewardship was demonstrated by both High Farmers who could be categorised as Environmentalists or Conservatives. Ironically, both farmers who focused more on environmental sustainability were also more profitable. One farmer commented that only by being profitable did farmers have the ability to look after the environment. Mitigation practices such as fencing waterways and planting riparian strips are primarily at the farmer's expense. A drop in milk pay-out, dictated by the global milk powder price in the 2014/15 season, could affect farmer's ability to implement proactive measures to mitigate negative

environmental outcomes. As demonstrated by Figure 2, the dairy pay-out volatility has increased since the 1980s.

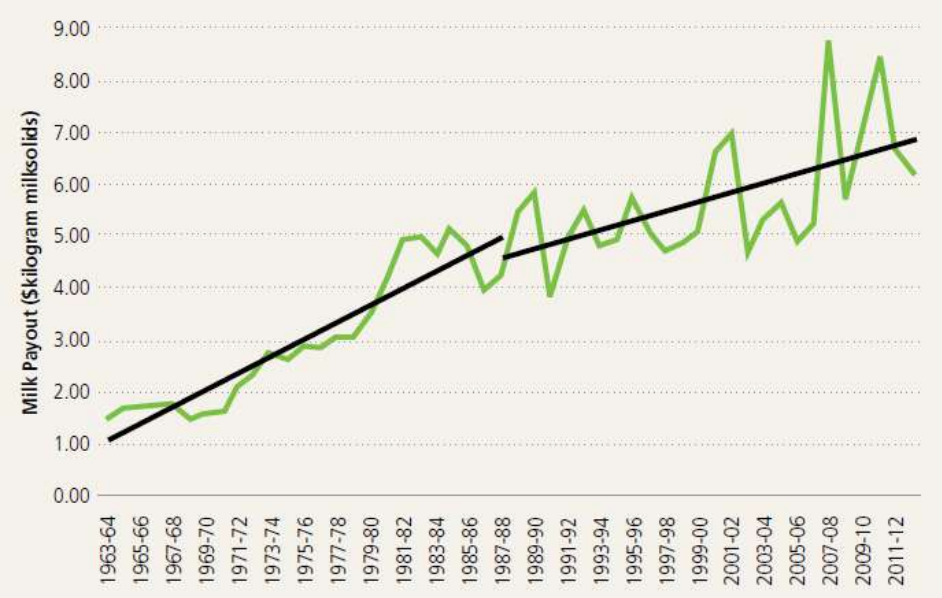

Figure 2 Trend in Milk pay-out (Dairy NZ)

As cutting costs could become a priority, any cost not related directly to production may need to be deferred. Hence, the economic climate may have a temporary impact on farmers' attitudes towards the environment.

Conclusions and further research

It is possible to have both profitability and better environmental outcomes. However there are some hurdles regarding farmer attitudes for these systems to be

adopted, e.g. the variability and risk of the dairy pay out. When the pay-out is high, farmers could seek to increase their production and convert more land to dairy framing. As individual producers supply more, both locally and internationally, price reduces. To reduce the amplitude of the bust due to oversupply, New Zealand farmers need to be more proactive in anticipating their collective impact on prices. Some work is required both at a national level and an individual level via farmer education to mitigate the oversupply problems, in which farmers simply react to the previous period's prices and in aggregate over- or under-supply the market. The education on market forces would complement the technical education they currently receive.

It is recommended that follow up studies, utilising the learning from this preliminary study be completed on larger data sets be undertaken, to allow for more precise statistical analysis. They should be further segmented to account for other variables such as farm and herd size, ownership or management structure and subsystems, for example feed pad versus in-shed feeding systems. The level of education was found to have an influence on farm profitability in international studies and these effects could be incorporated into follow up studies on larger sample sets.

Within the period from October 2014 to May 2015 the forecasted pay-out for 2014/15 season fell to almost half that of the 2013/14 record pay-out. This

demonstrates the volatility and profound effects the global market price has on the industry. This factor will have a large influence on the operating surplus/kg nitrogen leached - if the study was repeated another year, the results could be quite different. It is recommended that a three-year average milk price be used in further studies. Alternatively, calculations could be performed on the average operating surplus over three years, which would also factor in weather influences such as drought. The attitude of farmers to spending money on environmental mitigation might change in less profitable years. Investing in high input feed pad systems is a long-term commitment.

The farms in this study were restricted to a small geographical area to limit variability such as soil type and climate. Further studies across multiple geographical locations should be performed to ensure data takes into account the physical and climatic differences. The debt ratio impacting interest payments is a factor that needs to be considered in further studies. Differences in debt leverage affect profitability, which is not related to physical farm efficiency.

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Murray And Trettel, Inc.

A Business Proposal

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Company Overview

Murray & Trettel, Inc. (M&T) was established in 1946 by two Army Air Force weather officers, John R. Murray and Dennis W. Trettel. Their goal was to provide accurate, site-specific forecasts on a real-time basis. In time, they began forecasting the weather's impact on their clients' operations.

M&T has 21 employees and is headquartered in Palatine, Illinois. A small office is located in Pennsylvania. They are a long-standing member of the American Meteorological Society, the National Council of Industrial Meteorologists, and the Snow and Ice Management Association.

Mission Statement

The mission of the corporation is to provide sound advice, information and service to our clients on past, current and future weather conditions; on meteorological and

air quality instruments and measurement; and on numerical simulation of the atmosphere. This mission is implemented through traditional weather analysis and forecasting, ambient and in-situ measurement, instrument services in the field, remote data acquisition, studies and reports. In furthering this mission we seek to be a significant contributor to business, industry and government. We endeavor to identify weather-sensitive operations and opportunities; provide timely advice to key decision makers to enhance their cost-effectiveness; manage our operations effectively and in a manner both stimulating and satisfying to all employees.

Company History

Murray and Trettel, Inc. was founded in 1946 in a downtown Chicago office. The primary offerings were Snow-Ice Storm Warning services, construction industry and agricultural advisory services. In 1954, the company moved to Skokie, Illinois and added services such as Commodity Markets Services, Utility Industry Operational Forecasts, Emergency Warnings and Environmental Service to utility companies.

In 1964, M&T was incorporated in the State of Delaware as a C Corporation. Around this time, M&T was certified by the American Meteorological Society. M&T began Media Weather services and service to the Mining industry, and developed Aviation Forecasting in the Central Weather Service office. Private and

corporate interests, Medi-vac Operations, and Aerial Photography all utilized Aviation Forecasting.

In 1966, the company broadened the services to the Environmental Applications Division, providing environmental research and studies, instrument installation and maintenance, data recovery, editing and reporting, and emissions monitoring. In the 1970s, M&T developed Nuclear Emergency Forecast services and models and Meteorological Monitoring at Nuclear Stations and computerized the Supplementary Control System. Diffusion models were brought on-line and operating Air Quality Systems were installed, maintained and computerized. Continuous Emissions Monitoring Service also began.

In the 1980s, M&T activated nationwide interstate highway trucking bulletins. The Comprehensive Weather Data base was computerized and brought on-line for client use. A Microtel data logger was developed for field use.

The company acquired a small sole proprietorship, C.A.L.M. Weather Research, Inc. in 1993. The business was owned by Mark T. Carroll and specialized in the production of Climatological Reports for the placement of new airports and runways. Mark joined M&T in the capacity of Sales Representative. In 1996, the company acquired Central Weather Service, a meteorological consulting firm located in Wheeling, Illinois, specializing in aviation and commodities

meteorological consultation. In the 2000s, M&T developed MetricTech, a means of improving probabilistic forecast techniques and reducing forecast bias.

Objectives

M&T's objective is to increase revenues to $5 million and raise net profit to 7% of revenues over the next three years. In 10 years, M&T plans to increase revenues to $25 million and net profit to 10% of revenues.

Product and Services

Operational Forecast Division WEATHER COMMAND®

M&T's WEATHER COMMAND® Operational Forecast Division operates 24 hours a day, 365 days a year. There are sixteen professional meteorologists on staff at WEATHER COMMAND®.

WEATHER COMMAND® uses a NOAA Port satellite data acquisition system to receive and process all their worldwide weather data, radar, satellite and model data. WEATHER COMMAND® meteorologists can display, print and store data as needed and can produce maps, charts and tables on demand:

- Utility Forecasts
- Daily Operational Forecasts
- Snow and Ice Warnings
- Storm Warnings
- Telephone Consultation

- Forensic Meteorology
- Aviation Forecasting for:
  - Private and Corporate Interests
  - Medi-vac Operations
- Aerial Photography

Environmental Applications Division

- Service to Nuclear Utilities
- Sulfur Dioxide Calibrations and Audits, Opacity Audits
- Install and Maintain Meteorological Monitoring Equipment
- Data Collection, Archiving, QA, reporting and Climatic Analyses

Market and Industry Analysis

Overview

The broad weather and climate industry is composed of approximately 350 commercial weather companies that generate $3 billion annually. The industry itself is worth roughly $6 billion and growth is projected at 10-15% annually (Eisen, 2014). Combined annual revenues of the 350 companies have increased by 50% in the last two years. The private weather sector is now twice the size of the National Weather Service (NWS) and is one of the most rapidly growing industries in the United States.

Private weather companies obtain their data from the federal government. The NWS gathers data using weather balloons, ocean buoys and satellites, which is

then fed into a super computer to forecast weather. The forecasts are then distributed to clients in text or map form.

Companies re-package the data for a variety of products and services tailored to specific customer needs. Some of these include individual reports, weather applications for smart phones or subscription-based services. Transactions in this industry are typically conducted in a business-to-business environment, although there are instances of business-to-customer transactions. Buying decisions are made through a competitive bid and proposal process, resulting in primarily firm fixed price contracts for multiple years with options to extend, or on an individual fee basis. Demand in the industry is seasonal, with the summer months typically slower. The three main reasons clients choose private weather services over free, public information are accuracy, 24/7 accessibility to a trusted meteorologist and operational forecasts to support better decision making (Noyes & Mandel, 2012).

Market Size and Growth

Industries	Market	Estimated # Prospects	Projected Growth Rates
Municipalities	Forecasting	3,900	.02%
Construction Companies	Forecasting	550	4.0%
Water Parks/Golf	Forecasting	3,300	5.1%
Farms	Forecasting	150	-6.0%
Property & Casualty	Forensics	900	4.0%
Nuclear Power Plants	Environmental	20	1.0%
Industrial Parks	Environmental	2,000	10.0%
Large Wind Farms	Environmental	130	13.0%

Competitive Environment

The private weather industry is highly fragmented. While there are a few large competitors such as AccuWeather, MDA Federal Inc. (EarthSat) and Weather Services International (WSI), the majority of the 350 organizations are small companies that serve local or regional markets. The large companies tend to serve bigger clients such as major airlines or large corporations in various industries. Small weather companies compete in the areas of IT capabilities, accuracy of forecasts, price and customer service. They also compete against widely available, free weather information and differentiate themselves by leveraging their geographic proximity to customers to give a local feel to their services.

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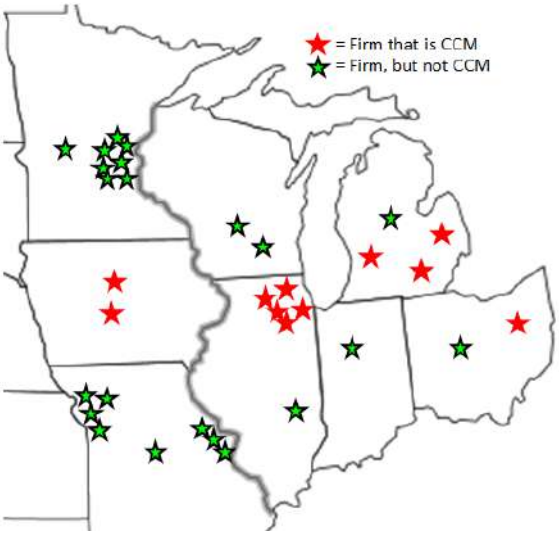
Customers' willingness to pay for private weather services is driven by accuracy, operationalization of forecasts and personal consultation in order to manage their organizations more effectively. Competitors position themselves as having diverse product portfolios with cutting edge technology. These IT capabilities allow them to provide data integration products and web based products at competitive prices. Some competitors also seek to become Certified Consulting Meteorologists (CCMs). This can be a differentiating factor among competitors. Below is a snapshot of the competitive landscape of private weather firms in the Midwest:



Opportunity

M&T has an opportunity to capture new business with local and regional markets that are under served or ignored by direct and indirect competition. Some nearby

states such as Indiana, Iowa and Wisconsin have very few private weather firms. In the short-term, new business from nuclear plants can be captured given M&T's strong rapport with clients and proven reputation with nuclear facilities. For example, the Point Beach Nuclear Plant 2 located in Two Rivers, Wisconsin, currently does not use a private weather service (Lewandowski, 2014). In the mid and long-term, there are also opportunities to target new markets such as municipalities, water parks, landscaping companies, large wind farms, golf courses, industrial parks, farms and construction companies. M&T can leverage its flexibility, industry experience, client loyalty, responsiveness, reputation and rapport with clients as its competitive advantage.

Development Strategy

Lacking an emphasis on sales or ability to technologically differentiate their products and services, M&T is in a dire situation. . The key to immediate growth and attracting new business is planning a development strategy that balances M&T's short-terms needs and long-term goals. To do so, we recommend M&T deploy an organizational strategy called "Back to Basics."

Our "Back to Basics" development strategy consists of three phases:

Phase I - "Restart" – Develop vision, restate mission, and jump-start sales

Phase II - "Redo" – Focus on technology as a way to differentiate

Phase III – "Reload" – Innovate, Operationalize, and Inspire

Phase I – Restart

Timeframe: 6 – 12 months

The primary focus in Phase I is to reinvigorate the M&T staff and jump-start sales to provide additional investment for phase II. Tasks in the restart portion of "Back to Basics" include:

1. Develop a vision for M&T – what is the future state of M&T? What do the leaders and the employees want it to look like in the future? Does the vision inspire their employees?
2. Restate "Mission Statement" – what is the purpose? Should answer: What they do, who they do it for, and how they do it.
3. Goal development – establish and publish company-wide goals for each of the divisions within M&T.
4. Create Key Performance Indicators and metrics for all employees.

a. Metrics should be measurable and focus on driving systemic improvement within the organization (i.e. how are employees able to reduce the amount of time it takes to develop a specific report?).

5. Establish a formal bonus program tied to specific earnings targets for all leaders in the organization.
6. Improve existing AR practices by enforcing payment terms with customers.

The tasks highlighted above are more organizational; however as part of Phase I, there are also specific tasks that relate to establishing a formal sales program:

1. Develop an incentive program that promotes sales growth.
2. Hire a full-time sales manager that focuses on business development.
3. Refresh M&T collateral to highlight value-added services provided by each of the divisions (local, customized reporting and high customer service).
4. Leverage existing meteorological staff to assist with lead-generation during non-peak times (i.e. summer).
5. Establish a formal sales training program and incentive program supervised by the sales manager and leadership.
6. Convert current sales personnel to focus exclusively on weather forensics.
7. Increase marketing activity to include trade-shows, cold-calling, and customer visits.

Phase II – Redo
Timeframe: 13-24 months

The focus of the Phase II portion of "Back to Basics" is to upgrade M&T's technological capabilities to help penetrate the marketplace further and grow their customer base. Phase II activities include:

1. Hire a software developer that can enhance graphical offerings and focus on scripting and automation.
2. Upgrade existing software packages (several are provided in the operations portion of this business case).
3. Hire an additional sales employee to focus on business development.

4. Launch web-based portal for customers to purchase customized weather reports.

Phase III – Reload

Timeframe: 24-36 months

With a sales organization developing, the focus in Phase III is continued innovation and sales. Activities included in Phase III are as follows:

1. Convert Meteorologists back to operational role and focus on systemic improvement within operations.
2. Hire 1-2 inside sales personnel dedicated to business development.

Marketing Strategy

Overview

Our recommended marketing strategy correlates with the three-phased approach described in the development plan for the organization: get back to basics and, through a focused and dedicated organizational structure with optimized technology, capture a more significant portion of the marketplace.

Our strategic objective is to grow M&T's customer base, placing a strong emphasis within the marketplace on the key attributes a private weather service offers, including increased accuracy, relevant operational forecasts and personal consultation services. To reach this goal, we will leverage the skills and expertise

of M&T's meteorological staff and superior customer service offerings, and invest in key resources within the sales and technology areas. In addition, on the environmental side of the business, we believe a concerted ongoing effort to secure additional market share is a critical role of the EAD Director. Having captured a significant portion of the nuclear industry already, M&T should emphasize their expertise and competency within this marketplace.

Over the next five years, the M&T's marketing strategy will be to deliver the following sales projections:

Summary of Incremental Revenue Growth:

(000's)

	ACTUAL 2013	PROJECTED 2014	PROJECTED 2015	PROJECTED 2016	PROJECTED 2017	PROJECTED 2018
Incremental Revenues	$ 2,375	$ 2,713	$ 3,338	$ 4,066	$ 4,745	$ 5,344
Growth YoY	2.2%	14.2%	23.0%	21.8%	16.7%	12.6%

This will require a limited investment in marketing materials, with a strong emphasis on the sales organization in order to market the product.

Target Market

In order to generate the sales projected growth rate of 225% over the next five years, M&T needs to expand its penetration in the forecasting and forensics segments of business, with a clear focus on the eight key market segments

identified in the Market and Industry Analysis section. An emphasis should be placed on Illinois and the four Midwestern states (IN, MI, OH, WI) surrounding M&T's corporate headquarters where they already have an established customer base. M&T's ability to capture additional customers within the same market vicinity will improve economies of scale in regard to report production and allow them to utilize their customer base as key references during the sales process. These geographic locations also make sense due to the proximity of the prospects to the newly established sales organization in Palatine, IL. Based upon the limited amount of resources M&T has dedicated to sales (less than ½ a headcount), there is a significant amount of market share available for pursuit.

In terms of the environmental segment of the business, M&T has proven to be a strong competitor within the marketplace. Utilizing the knowledge and expertise they have developed, as well as the resources already invested in this portion of the business, they should pursue additional nuclear plants, as well as businesses operating in industries like manufacturing, textile, oil & gas, chemical, and energy.

Positioning

In phase I of the development plan, M&T can differentiate itself from its competitors and the free weather data available from the National Weather Service (NWS) by emphasizing the increased accuracy that comes with customized weather reporting for the local areas their client base serves. They must highlight

the strong technical expertise of their meteorological team and the superior customer service they provide. Their personal consultative services and tailored reporting meet the needs of the customer. Clear and simple marketing materials that support this message should be developed for potential customers, providing the information they need to support their case for funding.

Since M&T's product currently lags behind the industry in technological capabilities, they should focus on their market expertise, current customer case studies and their ability to identify a potential customer's needs and provide the appropriate solution. Identifying 8-10 clear weather-related issues that companies face, gathering current customer data on how M&T has and/or could solve those issues and documenting the associated return on investment will be key to capturing additional market share. Many organizations have not considered purchasing weather services, so establishing a clear reason for the service within specific markets before a sales call will streamline the sales process.

Once M&T has increased its earnings base enough to support a technological investment, they should continue to emphasize the core private weather service benefits listed above, with an added emphasis on timely and user friendly reporting.

Service Strategy

M&T has positioned itself as one of the most respected meteorological consulting firms in the Chicago area. For over 50 years, they have provided clients with detailed weather services to include: Environmental Services, Forecasting Services, and Forensic Services. Their data is collected, analyzed, and certified by a team of professional meteorologists with over 50 years of combined experience, and the staff is available 24 hours a day, 365 days a year. M&T divides its service strategy between environmental services and forecasting services.

Environmental Services

Specific to environmental, M&T should continue to provide all of the services they currently provide, which include:

- Emergency Preparedness Program for the Nuclear Industry
- Atmospheric Dispersion Modeling
- Continuous Emissions Monitoring
- Thermal Probe Maintenance and Administration

Given M&T's history with existing nuclear customers, the need to differentiate and improve services in the immediate future is low. Given the profitability of this service offering, M&T should explore different reporting techniques that would allow them to capture more market share within the nuclear industry.

The environmental services offered by M&T today are not specific to the nuclear industry and can be used by other industries to include: manufacturing, textile, oil

& gas, chemical, and energy. Penetrating and capturing sales in alternative industries will help minimize the risk associated with having one customer providing 60% of their revenue within the environmental segment.

Forecasting Services

While M&T has technical areas for improvement, there is still an opportunity to capture additional sales with their existing forecasting services. Their key differentiators are: ability to provide local, customized, customer specific weather reporting and 24x7 (some people are writing 24/7, be consistent) customer service to both existing and future clients. Providing a local, customized report to clients is not an easy task for the larger weather companies. M&T should continue to exploit this advantage and use it to describe the value they can provide to clients over their competitors.

A 2013 article in WeatherWise Magazine described customer service or personal consultation as "perhaps the most important factor as to why companies hire private forecasting companies." Customers that utilize professional forecasting services want a 'one-on-one' experience and want to be able to pick up a phone and talk to a meteorologist in real-time. M&T needs to keep this as a focal point and key differentiator for customers.

As forecasting sales increase, the level of automation and customization will only increase as well. Future offerings by the forecasting division should include:

- Customized web-portal for existing customers to retrieve their reports
- Enhanced weather graphics to go along with their existing structured data model
- Localized weather reports available for purchase online
- Reporting for additional weather events to include: fog, rain, hail, lightning, and tornados.

M&T should continue to provide forensic data services for customers along with forecasting and environmental services. Forensic services represent a growing segment in the industry. Providing accurate, certified weather data is a service that only a few in the industry are able to provide, therefore it is a way to differentiate themselves with customers.

E-commerce

In order to economically sell within the industry and gain some economies of scale, M&T will need to make a minimal immediate investment in its website to allow the small customer (less than $2,000 per transaction) to purchase and pay for services via the web. Inside sales efforts can make out bound calls to small municipalities, contractors and landscaping companies to generate interest in the seasonal M&T services. However, a quick and automated process for ordering and

paying for the services via the web is critical for the organization to generate economies of scale and increased cash flow. A third party payment gateway service can be quickly added to the M&T website, with an associated order form or shopping cart for payments. Dedicated time by full-time commissionable sales resources for accounts worth less than $2,000 annually will quickly result in inadequate resources and less time spent securing the larger, key accounts within the industry.

Today, M&T is using its website as a customer portal. This customer usage will increase in importance as customers are directed to the website during the inside sales process and in the future to obtain forecasting reporting. Money spent refreshing and updating the website will be a wise investment from both a branding and competitive perspective.

Pricing/Marketing Tactics

M&T should identify a set of standard product offerings with established pricing for each of those products. A pricing catalog should be developed as part of M&Ts marketing collateral. This will be especially critical to facilitate the inside sales process targeting the small business accounts. A pricing grid should be established for medium-sized accounts that set parameters and guidelines for pricing based upon historical gross margin analysis. Customized pricing for the larger key accounts should be based upon an individual gross profit analysis that

takes into account the time and effort required by the organization. Target gross margin requirements should be established to ensure the additional business is profitable for the organization and should require senior management approval.

In terms of marketing tactics, M&T should engage in some basic marketing activities to maximize their brand and capture additional market share, including trade shows and web advertising. The sales manager and EAD Director should attend key trade shows, within the five states identified earlier. Trade shows are an important mechanism for identifying new client prospects as well as providing an opportunity to connect in person with M&T's current client base. In addition, M&T should purchase web advertising on a select number of industry trade websites, providing potential clients with simple but compelling reasons for purchasing M&T's weather services. This might include:

- ICMA.org (City Managers Association)
- PWMAG.com (Public Works Magazine)
- Contractormag.com
- Professionalroofing.net
- Waterparks.org
- AWEA.org (American Wind Energy Association)

Finally, M&T should brand their environmental work vehicles with an inexpensive M&T or M&T vehicle wrap and take advantage of this simple but effective marketing tool. It will create a great first impression when servicing clients and will allow M&T to reach a larger audience. Vehicle advertising can be a cost effective mechanism for extending the scope of marketing and capturing more customers.

Sales Strategy

A successful sales strategy will align with the phased approached mentioned in the development section. To support the first phase, a dedicated sales manager must be hired. This person does not have to be highly experienced, but needs to have a demonstrated ability of lead generation and sales growth, along with technical aptitude and managing capabilities.

The starting base salary will be $60,000 with an added commission per the schedule below.

Commission Rate Schedule for New Business Directly Generated			
New Customer Agreement	Year 1	Year 2	Year 3
0 – 1 Year Contract	10%	N/A	N/A
1 – 2 Year Contract	10%	5%	N/A
2 – 3 Year Contract	10%	5%	2.5%
Commission Rate Schedule for New Business Indirectly Generated			
0 – 1 Year Contract	2%	N/A	N/A
1 – 2 Year Contract	2%	1%	N/A
2 – 3 Year Contract	2%	1%	½%

The sales manager will be responsible for training of sales staff or employees involved with sales. One of the most critical tasks this individual will be responsible for is setting sales metrics and establishing targets for the sales staff, providing full accountability of the organization. Commissions will be paid for the first year of revenues generated for all contracts signed and multi-year contracts will be rewarded with an extended commission period. A slightly lower commission percentage will be paid for sales generated by the in-house staff.

Since the summer months are slower for the meteorologist staff and sales growth is a priority, this team should be leveraged. The sales manager will be responsible for establishing a sales program and providing training to the meteorologist staff in outside sales calls. The meteorologist staff can then be utilized during the seasonal slow months for increasing revenue by generating sales to smaller customers (< $2,000) and supporting e-commerce sales orders as mentioned in the marketing strategy. Meteorologists that generate inside sales will be incentivized by earning a flat 5% commission on their sales and they should be paid monthly to closely tie the reward to the action. Inside sales can be difficult and the transition may not be successful for everyone. There may be individuals who choose to leave the organization. The management team will need to be prepared to possibly replace some of the current staff who is not willing or able to assist the organization within this focused period of sales growth.

The sales manager will require transportation to meet with new and existing customers. M&T should change its current vehicle policy and eventually eliminate all non-environmental business owned/leased vehicles. In the short term, the sales manager may continue to use the allotted company vehicle. However, once the vehicle is turned in or sold, M&T should adopt the following business travel arrangement per the transportation matrix below. The sales person will receive mileage reimbursement for any business travel within a 150 mile radius. Any distance beyond is covered in the Business Travel Schedule below:

Schedule of Sales Business Travel for Transportation (per business trip)		
Time	Mileage	Method
0 – 2.5 hrs	0 – 150	Mileage reimbursement in accordance with IRS rules
2.5 – 5.0 hrs	150 - 300	Rental Car
Over 5.0 hrs	Over 300	Air Travel

The sales manager will aggressively seek and develop relationships with new customers. Once the contract is signed by the customer, all day to day handling will be conducted by the meteorologist team. However, part of the President and EAD Director's role should be focused on the account relationships of key large accounts. It should also be noted that any employees involved in new environmental sales will receive a 10% commission.

With increased volume of customer contacts and sales generation, it will be necessary to have a tool that will track the sales process. It will not only provide a place to keep track of sales contacts, but also track lead generation, closing contracts and sales performance reports. A Customer Relationship Management (CRM) tool is essential to perform all these tasks. An example is ACT or Gold Mine and will cost approximately $7,000 in the first year to implement.

Finally, to meet the increased revenue projections in Phase 2 of the development plan, it will require an additional full-time outside sales person to be hired. This individual can be slightly junior to the sales manager with a $45,000 base salary and the same commission structure as the sales manager.

Technology Operations

Current Environment

In a competitive business environment, where a lot of information is available for free, it is important to have technology that will differentiate M&T from competitors. M&T's current technology is outdated. Maintaining old servers and computer systems, as well as outdated software such as Quattro pro and Macros makes operations inefficient and costly. The mechanism used to deliver weather reports and notices are e-mail, fax or ftp, depending on the customer's preference. There is currently no way for customers to generate non-critical reports on demand. They are dependent on manual operations which can create delays in receipt of the reports. Some of these methods are also obsolete. Reports are printed and attached to clip boards which are then posted on the walls. All of this introduces inefficiencies and requires more manpower to complete day-to-day operations. All data that is currently received and analyzed is from free sources like the National Weather Bureau and requires labor to compile to usable format. Finally, the current website for M&T is not up to industry standards and does not

offer customers a convenient mechanism to obtain reports and data, or contract and pay for services.

Proposed Technology Upgrades

A key component of phase II of the development plan is M&T's investment in technology. It is recommended that a network administrator/applications developer with extensive knowledge in open source software and development tools be hired to help upgrade the current technology. The role of this individual would be to guide to M&T in developing software and generating graphical reporting that will help them improve their offerings to the marketplace. This will also allow M&T to re-enter those market segments lost due to inadequate product offerings. The addition of graphics and charts will make the reports easy to understand and more attractive to the end user. In order to find an individual who possesses weather competencies and brings innovation to the business, it is suggested that M&T target an individual from one of the major weather competitors (such as AccuWeather) who is looking to advance his career and looking to lead change and is open to new challenges.

There are two approaches to make changes in technology. The first approach is to use freeware software that is readily available and can be customized. Operating Systems like Linux and CentOS can be used as the base Operating System and free database packages like MySQL are also available. Free development tools can be

found on websites like Sourceforge. The advantage of this approach is that the software is free and applications can be created to meet the needs of clients. The application can be customized as market demands and needs change. The drawback of this method is the need for an application developer who understands all the free software available. The other drawback is very little support is available in case issues arise and the only way to get help would be via support groups. The second approach is to purchase branded software that has been created to meet the needs of the industry. The advantage of this approach is quick implementation of the package and support availability. The drawback of this method is expense with and little or no customization available. Clients are dependent on software vendors to give provide enhancements to the feature set.

Transforming and updating the website to include features like e-commerce payment or having sales tools and demos on reports will establish market awareness. M&T can also use the improved website and e-commerce to increase social media awareness. Given the number of small customers within the marketplace, the ease to subscribe and pay for services will reduce accounts receivable and overhead costs of collecting from small customers.

Management

Company Organization

M&T has two distinct groups: the Environmental Services division and the M&T® division. The Environmental side is headed by Mark Carroll and has six staff members. The forecasting division is headed by Tom Piazza and has 10 meteorologists. There is also an administrative support person and a sales and marketing representative.

Management Team

Thomas R. Piazza, President and CEO of M&T has more than 30 years of experience in the field of meteorology with more than 15 years in management positions. Tom joined M&T in 1975 after four years as a Weather Officer in the U.S. Air Force. In 1987 he was named President of the Operational Forecast Division, in 1991 Executive Vice President of the Company and in 2001 President and CEO. In addition to his administrative responsibilities as President, Tom retains the title of Chief Meteorologist and continues to manage the Operational Forecast Division.

Mark T. Carroll, Executive Vice President of M&T offers nearly 20 years of experience in the field of meteorology in the areas of Consulting Meteorologist and Marketing Management. Mark has served as adjunct Faculty for area colleges,

conducting classes in the field of meteorology. In addition to his responsibilities as Vice President of the Company, Mark serves as manager of the Environmental Applications Division.

Competitive Advantage

Environmental Division

M&T is known in the environmental field as reliable, dependable and consistent. When WEATHER COMMAND® was introduced, the environmental division kept the Murray and Trettel branding because it was known and well trusted within the industry. Brand is their competitive advantage in this market.

WEATHER COMMAND®

Weather forecasts are available for free in a variety of media. The local news forecasts, smartphone applications and websites will all provide local weather information. WEATHER COMMAND® can refine these forecasts to localized levels as specific as street intersections. This is helpful for companies looking for information to validate contract requirements, insurance policies, etc. The free service may predict more than two inches of snow for the City of Aurora. However, it is possible that only the southern portion of the city will actually reach that total. A snow removal company would save labor costs if it only has to deploy to a certain section of Aurora, rather than the entire city.

WEATHER COMMAND® also provides meteorologists on staff that will take a client's call 24 hours a day, 7 days a week. Any client can speak to a meteorologist to clarify weather patterns, forecasts, etc. This personal touch is valuable and the clients feel it is worth paying for.

Financial Plan

MURRAY AND TRETTEL INC.
STATEMENT OF PROFIT & LOSS

(000's)	ACTUAL 2013	PROJECTED 2014	PROJECTED 2015	PROJECTED 2016	PROJECTED 2017	PROJECTED 2018
Revenues	2,375	2,713	3,338	4,066	4,745	5,344
Direct OPEX	1,735	1,805	1,918	1,969	2,024	2,079
Gross Profit	**639**	**908**	**1,420**	**2,097**	**2,721**	**3,265**
Sales & Admin	400	467	577	626	644	656
Other Expense	106	101	104	107	110	113
Pretax Income	**133**	**340**	**739**	**1,364**	**1,967**	**2,496**

Over the next 5 years, with proper execution of the 3-phased development plan, M&T should generate $5.3M in revenues for the year ending 2018 with $2.5M of corresponding net income. The ability to generate significant growth grow the business over the course of 5 years is based upon the following key investments by the organization:

Annual Proposed Investments (000's)	PROFORMA 2014	PROFORMA 2015	PROFORMA 2016	PROFORMA 2017	PROFORMA 2018
Cumm Revenues Generated	**273**	**832**	**1,492**	**2,100**	**2,627**
Sales Investment	59	162	200	206	206
Marketing Investment	19	13	10	12	12
Technology Investment	4	71	75	77	78
Total Investments	82	246	284	294	296
NET FINANCIAL IMPACT	**191**	**586**	**1,208**	**1,806**	**2,331**

Investment Assumptions:

Sales: 1 full-time salesperson hired July 2014, CRM tool, l salesperson hired April 2015

Marketing: Sales Collateral, trade show attendance and vehicle branding

Technology: $37K hardware/software in 2014, developer hired June 2015

The revenue growth over time stems from an increased focus and investment in the sales organization. By leveraging the off-season capacity of the meteorologist staff in years 2014-2015, M&T is able to build up enough customer base to upgrade its technological capabilities. This in turn, should generate additional sales opportunities as M&T brings a more robust product to the marketplace. Sales assumptions, by sales type, within the plan are as follows:

Sales Summary:						
Total Inside Sales	**2014**	**2015**	**2016**	**2017**	**2018**
# New Clients	112	200	225	225	225
Total New Revenue	$ 82,400	$ 147,200	$ 165,600	$ 165,600	$ 165,600
Total Outside Sales					
# New Clients	31	70	84	84	84
Total New Revenue	$ 171,000	$ 374,000	$ 496,500	$ 496,500	$ 496,500
Salesperson #1	$ 171,000	$ 224,400	$ 248,250	$ 248,250	$ 248,250
Salesperson #2	$ -	$ 149,600	$ 248,250	$ 248,250	$ 248,250
Total EAD Director/Prof Engineer					
# New Clients	1	4	6	8	8
Total New Revenue	$ 20,000	$ 80,000	$ 120,000	$ 160,000	$ 160,000

Due to the inexperience of the meteorologist staff in product sales, assumed sales per person were set conservatively. However, by making better use of idol staff, the inside sales team should generate on average $155K of revenues annually – enough to support much needed investment in technology beginning in 2015.

Sales Projections:					
Inside Sales/Meteorologist	**2014**	**2015**	**2016**	**2017** [1]	**2018**
# Headcount	9	9	9	2	2
Annual # New Contracts /person	12	22	25	113	113
Outside Sales					
# Headcount	1	2 [2]	2	2	2
Annual # New Contracts /person	31	35	42	42	0
Environmental Sales					
# Headcount	2	2	2	2	2
Annual # New Contracts /person	1	2	4	4	4

[1] Hiring of full-time inside sales staff; meteorologist back to FT weather forecasting

[2] Second sales person hired mid-year

Funding

M&T has minimal assets to leverage and does not wish to sign a personal guarantee. This proposal requires minimal funding and instead leverages the resources already in place. Phase one will be adding an additional sales person to design and implement the inside sales strategy as well as aggressively pursue large accounts. M&T has a staff of meteorologists that have substantial downtime in the off season. These employees' idle time can be leveraged to increase sales activities by performing inside sales tasks. The additional revenue generated by the reinvigorated sales strategy will fund the technology investment in phase two. This will allow for the additional staff members as well as the hardware and software. With continued revenue increases, Murray and Trettel, Inc. will be able to add another full time sales individual in phase two which will drive further growth.

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Financial Details: **Sales Detailed Assumptions**

REVENUES			PROFORMA 2014	PROFORMA 2015	PROFORMA 2016	PROFORMA 2017	PROFORMA 2018
Market: Insurance							
New Contracts - Small	Inside		**18**	**32**	**36**	**36**	**36**
New Contract - Large	Outside		**1**	**2**	**2**	**2**	**2**
New Contract Revenue - Small (Inside)		$400	7,200	12,800	14,400	14,400	14,400
New Contract Revenue - Large (Outside)		$30,000	30,000	60,000	60,000	60,000	60,000
Cummulative Revenue			**$ 37,200**	**$ 102,800**	**$ 164,400**	**$ 224,400**	**$ 284,400**
Market: Contractors	Inside						
New Contracts			**41**	**62**	**83**	**83**	**83**
New Contract Revenue		$800	32,800	49,600	66,400	66,400	66,400
Cummulative Revenue			**$ 32,800**	**$ 77,480**	**$ 132,258**	**$ 178,819**	**$ 218,396**
Market: Municipalities	Outside						
New Contracts			**9**	**26**	**26**	**26**	**26**
New Contract Revenue		$4,000	36,000	104,000	104,000	104,000	104,000
Cummulative Revenue			**$ 36,000**	**$ 134,600**	**$ 218,410**	**$ 289,649**	**$ 350,201**
Market: Farms	Outside: Launch Yr 2						
New Contracts			**-**	**-**	**13**	**13**	**13**
New Contract Revenue		$7,500	-	-	97,500	97,500	97,500
Cummulative Revenue			**$ -**	**$ -**	**$ 97,500**	**$ 180,375**	**$ 250,819**
Market: Industrial Parks	Outside						
New Contracts			**20**	**40**	**40**	**40**	**40**
New Contract Revenue		$4,000	80,000	160,000	160,000	160,000	160,000
Cummulative Revenue			**$ 80,000**	**$ 228,000**	**$ 353,800**	**$ 460,730**	**$ 551,621**
Market: Golf Course/Water Parks/Landsca	Inside						
New Contracts			**53**	**106**	**106**	**106**	**106**
New Contract Revenue		$800	42,400	84,800	84,800	84,800	84,800
Cummulative Revenue			**$ 42,400**	**$ 120,840**	**$ 187,514**	**$ 244,187**	**$ 292,359**
Market: VARIOUS LARGE FCST CLIENTS	Outside						
New Contracts			**1**	**2**	**3**	**3**	**3**
New Contract Revenue		$25,000	25,000	50,000	75,000	75,000	75,000
Cummulative Revenue			**$ 25,000**	**$ 71,250**	**$ 135,563**	**$ 190,228**	**$ 236,694**
Market: Environmental - WindFarms	Outside						
New Contracts			**-**	**2**	**3**	**4**	**4**
New Contract Revenue		$20,000	-	40,000	60,000	80,000	80,000
Cummulative Revenue			**$ -**	**$ 40,000**	**$ 94,000**	**$ 159,900**	**$ 215,915**
Market: Environmental - Nuclear/Other	Outside						
New Contracts			**1**	**2**	**3**	**4**	**4**
New Contract Revenue		$20,000	20,000	40,000	60,000	80,000	80,000
Cummulative Revenue			**$ 20,000**	**$ 57,000**	**$ 108,450**	**$ 172,183**	**$ 226,355**
Total New Revenues Generated			**273,400**	**601,200**	**782,100**	**822,100**	**822,100**
Cumm Revenues Generated			**273,400**	**831,970**	**1,491,895**	**2,100,470**	**2,626,760**

Detailed Sales Investment:

SALES INVESTMENT		PROFORMA 2014	PROFORMA 2015	PROFORMA 2016	PROFORMA 2017	PROFORMA 2018
Sales Manager (FT Employee)						
Salary/Payroll Taxes	Hired 7/1/14	30,000	60,000	60,000	60,000	60,000
Payroll Taxes	7.42%	2,226	4,452	4,452	4,452	4,452
Health Benefits	8.00%	2,400	4,800	4,800	4,800	4,800
Bonus	$ -	-	-	-	-	-
Commissions						
Forecasting/Forensic						
Year 1	10.00%	17,100	22,440	24,825	24,825	24,825
Year 2	5.00%	-	2,138	2,805	3,103	3,103
Year 3	2.50%	-	-	428	561	621
		17,100	24,578	28,058	28,489	28,549
Inside Sales						
Year 1	2.00%	1,648	2,944	3,312	3,312	3,312
Year 2	1.00%	-	206	368	414	414
Year 3	0.50%	-	-	41	74	83
		1,648	3,150	3,721	3,800	3,809
Total Commission Earned		18,748	27,728	31,779	32,289	32,358
Total Sales Person #1 Expense		**53,374**	**96,980**	**101,031**	**101,541**	**101,610**
Sales Person #2 (FT Employee)						
Salary/Payroll Taxes	Hired 4/1/15		30,000	45,000	45,000	45,000
Payroll Taxes	7.42%	-	2,226	3,339	3,339	3,339
Health Benefits	8.00%	-	2,400	3,600	3,600	3,600
Bonus	$ -	-	-	-	-	-
Commission						
Year 1	10.00%	-	14,960	24,825	24,825	24,825
Year 2	5.00%	-	-	1,870	3,103	3,103
Year 3	2.50%	-	-	-	374	621
Total Commission Earned		-	14,960	26,695	28,302	28,549
Total Sales Person #2 Expense		**-**	**49,586**	**78,634**	**80,241**	**80,488**
Environmental Commissions	10.00%	**2,000**	**8,000**	**12,000**	**16,000**	**16,000**
Inside Sales SPIFFS	5.00%	**4,120**	**7,360**	**8,280**	**8,280**	**8,280**
Sales Investment		**59,494**	**161,926**	**199,945**	**206,062**	**206,377**

Detailed Marketing Investment:

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MARKETING INVESTMENT	2014	2015	2016	2017	2018
Refresh Sales collateral	10,000	1,500	1,500	1,500	1,500
Additional Trade Shows	5,000	7,000	8,000	10,000	10,000
Vehicle Branding	4,000	4,000			
Marketing Investment	**19,000**	**12,500**	**9,500**	**11,500**	**11,500**

Detailed Technology Investment:

TECHNOLOGY INVESTMENT	Notes	PROFORMA 2014	PROFORMA 2015	PROFORMA 2016	PROFORMA 2017	PROFORMA 2018
Hardware						
Hardware Acquisition		15,000	-	-	-	-
Hardware Depreciation	5yr life	1,500	3,000	3,000	3,000	3,000
Software						
Software Acquisition - Vizrt	Perpetual License/	15,000				
Software Maintenance	Annual expense	-	3,000	3,000	3,000	3,000
Software Depreciation	5yr	1,500	3,000	3,000	3,000	3,000
Sales Software (CRM)						
Software Acquisition - Vizrt	Perpetual License/	7,000				
Software Maintenance	Annual expense	-	1,400	1,400	1,400	1,400
Software Depreciation	5yr	700	1,400	1,400	1,400	1,400
Developer (FT Employee)						
Salary/Payroll Taxes	Hired 6/1/15		50,000	51,500	53,045	54,636
Payroll Taxes	7.42%	-	3,710	3,821	3,936	4,054
Bonus	$ 3,500.00		1,750	3,500	3,500	3,500
Health Benefits	8.00%	-	4,000	4,120	4,244	4,371
Total Employee Expense		**-**	**59,460**	**62,941**	**64,725**	**66,561**
Technology Investment		**3,700**	**71,260**	**74,741**	**76,525**	**78,361**

Days Sales Outstanding

Cash Effect of Lower Days Sales Outstanding

		2013
Revenue	$	2,374,230
Cash		317,678
Accounts Receivable		382,775
Days Sales Outstanding		**58.85**
If collection was faster:		
Days Sales Outstanding		45
Revenue	$	2,374,230
Accounts Receivable		292,713
Cash		407,740
Cash Increase	**$**	**90,062**

Target Market Segments Primary markets for M&T to target include general contracting and construction companies, municipalities, water parks, insurance companies, farms, industrial parks, large wind farms and nuclear power plants. Below are the markets:

Opportunities	Municipalities	Construction Companies with 100+employees	Water Parks & Golf Courses	Large Wind Farms	Nuclear Power Plants	Insurance Brokers*	Farms	Industrial Parks
Illinois	1,299	150	710	46	11	NA	75,087	592
Indiana	567	100	465	18	0	NA	58,695	301
Michigan	533	100	846	19	3	NA	52,194	385
Wisconsin	592	100	535	17	2	NA	69,756	148
Ohio	938	100	793	30	3	NA	75,462	517
# of prospects	**3,929**	**550**	**3,349**	**130**	**19**	**900**	**331,194**	**1,943**
industry Growth Rate	**0.015%**	**4%**	**5.1%**	**13%**	**1%**	**4%**	**-6%**	**10%**

*= By state data unavailable. Growth measured in terms of net written premiums.
Source: http://www.iii.org/facts_statistics/industry-overview.html.

Municipality Market Trends

Between the 2002 and 2007 Census, the total number of municipalities for the Midwest region grew slowly at a combined rate of 0.015%. However, there was a notable demographic shift as the Latino population had the highest growth rate among all states. Illinois' Latino population grew by 32.5% between 2000 and 2010. The Latino population grew from 35.3 million in 2000 to 50.3 million in 2010, a 30% increase. The main challenges facing municipalities are "budgetary constraints, infrastructure demands, voluntary governmental mergers and shared services agreements, pension problems and balancing economic opportunities with environmental risk" (University of Pittsburg, 2014).

General Contractor and Construction Company Market Trends

This market is recovering slowly from the recession. According to the U.S. Bureau of Labor Statistics, of the 8.2 million jobs lost during the recession, 2.3 million were in construction. Based on the economy's gradual recovery and historical census data, we estimate annual growth in this industry to be 4%, primarily driven by general contractors since construction companies' recovery has been slower. Current trends with construction companies include "a shortage of laborers, difficulty in obtaining credit and a skittishness among developers to invest in new sites" (Reid, 2014). Other challenges faced in this industry include rising costs of wages and materials, time and environmental constraints, socio-political forces and legal issues of labor and safety. Despite these challenges, in

2009, Champaign, Illinois-based Imperial Construction Inc. subscribed to a large weather service provider called Meteorlogix, indicating interest and a willingness to pay for weather services.

Insurance Market Trends

The insurance industry has continued to improve after the recession. The industry is divided into two sectors: life and health (L/H) and property and casualty (P/C). Both sectors reported improved profitability in 2012. However, "the P/C sector net income was affected for a second consecutive year by large insured losses from natural catastrophes" (United States Treasury, 2014). As a result, the industry has made some changes. "To limit their exposure to these losses, insurers in coastal states along the Atlantic seaboard and the Gulf of Mexico sell homeowners insurance policies with percentage deductibles for hurricane damage instead of the traditional dollar deductibles. These deductibles are separate from deductibles for other perils such as fire" (Reid, 2014). In addition to more natural catastrophes, another trend is private weather companies providing verification for insurance claims or weather insurance itself. For example, some companies provide rain insurance, snow removal insurance, wind insurance, temperature insurance or lightning insurance, or verify weather events in order to get insurance claims paid.

Farm Market Trends According to US Census Data, between 2002 and 2007, the farming industry shrunk 6% in terms of the number of farms. However, the size of farms has increased 20% in that same time frame. This is because smaller farms

are consolidating into factory farms and the next generation is less interested in carrying on family traditions of farming. This trend is anticipated to continue as farms seek to gain economies of scale. Factory farms are more likely to use private weather services. Small farms tend to rely on local forecasts, are more financially strained, or are unaware of private weather services. The Federal Crop Insurance Corporation (FCIC) is a government-owned corporation managed by the Risk Management Agency (RMA). The FCIC oversees the federal crop insurance program, which provides farmers with crop insurance protection. The RMA underwrites crop insurance policies, which are sold and serviced by private insurance companies.

Water Park Market Trends

As the economy has recovered, so has the water park industry. According to the Themed Entertainment Association, the top 20 water parks in the United States recorded attendance of 15.4 million people in 2012, up 2.2% from 2011. In addition, in the five years to 2013, industry revenue is expected to grow an annualized 2.5%, including impressive growth of 5.7% in 2013, reaching $4.3 billion (IBISWorld Inc., 2013). Since water parks are viewed as an affordable luxury, the economy's improvement is the water park industry's benefit. In terms of competition, this market is moderately concentrated. The large water parks include SeaWorld, Walt Disney Company, Six Flags Inc. and Universal Parks and Resorts. These water parks can draw large numbers of people due to the wide

variety of activities. Other water parks are typically smaller regional locations serving local markets. As of 2013, there were "more than 550 enterprises operating in this industry" (IBISWorld Inc., 2013). Of note, the fastest growing segments of the water park industry in North America include municipally-owned water parks and indoor water parks attached to hotels or resorts (https://www.waterparks.org).

Golf Market Trends

Golf is making a comeback. Since it is viewed as an affordable luxury, golf suffered during the recession. However, "growth was up 0.86% in 2010 and 1.1% in 2011. By 2016, US golf course revenues are estimated to grow at 3.75% annually, led by positive growth in golf facilities and operations" (Research, 2014) The golf market is worth $25 billion, which is $20 billion in green fees, $4 billion in equipment and $1 billion in apparel sales.

Wind Farm Market Trends

Since 2005, demand for wind power has steadily gained traction as a renewable source of energy. Large companies such as GE, Siemens and British Petroleum have made large investments in wind power. States mainly drive wind energy policy since there is limited access to federal incentives. The Production Tax Credit (PTC) has been the main incentive for wind energy and has been crucial to the market's research and development. As a result, "the current trend of short-

term extensions of the PTC have led to a boom and bust cycle of short-term planning and low number of investments" (Wikipedia, 2014). All data is collected by the American Wind Energy Association (AWEA) in Washington D.C. 2013 was actually the lowest year for newly installed capacity since 2004, which is measured in terms of GigaWatts (GW), but this was due to the threatened expiration of the PTC. Despite the heavy reliance on the PTC, the U.S. finished 2013 with 12GW of new wind capacity under construction (www.rechargenews.com, 2014). The Global Wind Energy Council (GWEC) also projects growth to rebound to 13% in 2014.

Nuclear Market Trends

There are 104 commercial reactors, but only 60 physical commercial locations that have nuclear facilities. Historically, growth in this industry has been stagnant for the past three decades. This is due to several reasons. First, safety is a major concern. The Fukushima disaster in 2011 serves as a stark reminder for safety experts. Other reasons include the high cost of building a plant, cheaper natural gas prices and the long application process for construction and operating licenses from the government. However, there are new power plants that will be coming online in the next few years in the United States. "Industry experts say building interest is centered in Southeast states like Georgia, the Carolinas, Virginias, Alabama and Florida, where traditional utility regulation offers companies the best

chance to make a profit on the sizable investment needed to develop new reactors" (Rascoe, 2014).

Industrial Park Market Trends

There are over 2,500 industrial parks throughout the Midwest and they are commonly found in suburban and rural areas. In recent years, rural areas have received funding from the government in order to stimulate job growth with mixed results. The Department of Agriculture said it has provided more than $6.2 billion to help nearly 10,000 small and emerging rural businesses expand, creating or saving more than 250,000 jobs since 2009 ((Nixon, 2011). Prior to the recession, annual industrial park growth was booming at 31%, but after the recession and slow recovery, it is projected at 10%. Despite industrial parks' similarity in size to nuclear plants, there is little data to demonstrate that industrial parks have much awareness of private weather services nor have they been offered it.

Competition

Competition for M&T varies between direct and indirect competitors. Since direct competitors are private, there is no financial data available.

DIRECT COMPETITION	
Trinity Consultants, Inc.	Paul Derezotes
• Located nearby in Oak Brook, IL	• Located in Wheaton, IL

• 37 offices nationwide, 3 globally • High-Speed and Air Quality modeling • Custom environmental software • Software and web applications • Training for air dispersion modeling • (Trinity Consultants, 2014)	• Certified Consulting Meteorologist (CCM) • Applied meteorology services • Forensic meteorology services • Air pollution meteorology • Will travel out of state • No website listed
InfoWeather	Weather Central, Inc.
• Located in Edgerton, WI • Applied meteorological services • Forecasting and weather prediction • Agricultural weather services • Basic consulting services and training • No website listed	• Located in Madison, WI • Terry Kelly, President • Applied meteorological services • Agricultural weather services • No website listed

INDIRECT COMPETITION	
AccuWeather	The Weather Channel
• Founded in 1962, HQ in State	• Founded 1982, owned by NBC

College, PA • Acquired Weather Data Services Inc. of Wichita, KS in 2006 • 175,000 clients worldwide in media, business and government • (Accuweather, 2014)	Universal • Proprietary IntelliStar technology • Provides forecasts for Sirius XM Radio • Apps for iPhone, iPad, Android, Kindle Fire and Window • (The Weather Channel, 2014)
DTN/Meteorlogix	MDA Federal Inc. (EarthSat)
• Based in Burnsville, MN; founded 1976 • Weather division of Telvent DTN • Specializes in location-specific forecasts • Won contract for subscription services for Illinois-based Imperial Construction Inc. • Official forecaster for PGA Tour	• Founded 1969, HQ in Rockville, MD • Pioneer in commercial use of Earth observation satellites • Did work for NASA in late 90s • Acquired by MDA Ltd. of Vancouver, BC in 2001

Key Performance Indicators

Employees should be assigned Key Performance Indicators, or KPI's, as part of an annual review process. Some examples of KPI's that would help Murray and Trettel perform better are below.

- Design and implement process improvements to reduce staff time, company expenses or increase revenue.
  - Decrease the number of steps necessary to complete a task
  - Make information more accessible to staff members and customers
- Increase customer satisfaction
  - Measured by repeat orders or customer surveys
- Renegotiate or source new vendors at lower costs
- Bring days sales outstanding to 45 days

SPIFF Program

SPIFF ideas sales executives include:

- 5% commission on sales, paid monthly.
- First person to break a certain number of leads generated
- First person to close a certain number of contracts in a given time.
- Person with largest sales earned

General guidelines for SPIFF program:

- Should be short term in nature, anywhere from one week out to a full quarter.
- Payout should be immediate and in front of the team so all can be envious of the winner(s). The exception is commissions paid on a monthly basis.
- They should require some level of stretch performance, no sense in offering a SPIFF which everyone earns.
- Progress towards a SPIFF should be visible (office white board), People like seeing their name on competitive lists.
- Offer a rotating trophy of sorts so the SPIFF winner keeps something until the next winner occurs (e.g. plaque, special football or other recognizable token)

Job Descriptions

Job Description: Senior Software Engineer

Location: Palatine, IL
Department: Environmental and Forecasting Division
As a Senior Software Engineer, you will contribute to all aspects related to engineering, technical design and development. You'll get to play with highly scalable technologies like Redis, MySQL, and RabbitMQ while learning to build robust applications and RESTful APIs using Spring, Hibernate, and Flask. This

might include tasks such as researching new software solutions or altering our backend to implement new tools. If you love to work on tough problems that have a big impact then this is the job for you!

Qualifications:

- BS in Computer Science or equivalent
- 5 years of experience in software development
- Experience with Java, Python, Linux and open platform softwares required
- Application Developer C#, MySQL, .Net
- Java Developer – EJB – Weblogic, UNIX Shell, PL/SQL
- User Interface Developer – HTML, CSS, Javascript

Responsibilities

- The application developer is the primary resource for determining the approach to be utilized in a project implementation.
- The application developer should possess a thorough understanding of the product from both a functional and technical perspective.
- He or she should have a comprehensive understanding of the implementation methodologies for the technology being utilized in product development, such as .NET or Java Framework.
- The application developer participates in every aspect of the development and implementation, working with business analysts to ensure full understanding of the change implications to current business processes.

- He or she designs and builds product deliverables according to specifications, escalates technical design or specification issues to business analyst/project manager and application development director, and works within a given time frame to complete coding.
- He or she follows good development practices and software development life cycle methodologies throughout product development

Job Description: Sales Manager

Job Objective:

The Sales Manager will be responsible for the development and performance of all sales activities. Staffs and directs a sales team and provides leadership towards the achievement of maximum profitability and growth in line with company vision and values. Establishes plans and strategies to expand the customer base in the marketing area and contributes to the development of training and educational programs for clients and Account Executives.

Responsibilities:

- Develops a sales plan and strategy for the business that ensures attainment of company sales goals and profitability.
- Responsible for the performance and development of the Account Executives.
- Prepares action plans by individuals as well as by team for effective search of sales leads and prospects.

- Initiates and coordinates development of action plans to penetrate new markets.
- Assists in the development and implementation of marketing plans as needed.
- Conducts one-on-one review with all Account Executives to build more effective communications, to understand training and development needs, and to provide insight for the improvement of Account Executive's sales and activity performance.
- Provides timely feedback to senior management regarding performance.
- Maintains accurate records of all pricings, sales, and activity reports submitted by Account Executives.
- Assists Account Executives in preparation of proposals.
- Controls expenses to meet budget guidelines.
- Recruits, tests, and hires Account Executives based on criteria agreed upon by senior management.

Job Description: Account Executive

The Account Executive is responsible for all sales activities, from lead generation through close in an assigned territory. Develops and implements agreed upon sales plan which will meet both personal and business goals of expanding customer base in the marketing area. Works within the sales and support teams for the achievement of customer satisfaction, revenue generation, and long-term account goals in line with company vision and values.

Responsibilities:

- Responsible for the sales of services to the weather industry.
- Demonstrates technical selling skills.
- Supports the development of the sales plan in conjunction with Sales Manager, which details activities to follow during the fiscal year, which will focus the Sales Associate on meeting or exceeding sales quota.
- Demonstrates the ability to carry on a business conversation with business owners and decision makers.
- Maximizes all opportunities in the process of closing a sale resulting in the taking of market share from larger competitors.
- Sells consultatively and makes recommendations to prospects and clients of the various solutions the company offers to their business issues.
- Develops a database of qualified leads through referrals, telephone canvassing, face to face cold calling on business owners, direct mail, email, and networking.
- Assists in the implementation of company marketing plans as needed.
- Responsible for sourcing and developing client relationships and referrals.
- Maintains accurate records of all sales and prospecting activities including sales calls, presentations, closed sales and follow-up activities within their assigned territory and maintain accurate records to maximize territory potential.

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The Impact of Innovation Climate on Organizational Effectiveness

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Abstract

This study tried to address the challenge among universities to continuously update and innovate itself to adjust to the increasingly changing business environmental condition. One area that this research focused on is the correlation of innovation climate and organizational effectiveness in a university setting. Recent studies focused more on the innovative climate in the context of business and corporate entrepreneurship but is uncommon among researches to examine the school climate innovativeness and its effect on organizational effectiveness. The climate of innovativeness is demonstrated in terms of resources, personal motivation, and exploration or taking risks. On the other hand, organizational effectiveness is rated according to leadership and management style, job satisfaction, and employees' organizational commitment. The relationship model was examined using Pearson "r" correlation, ANOVA, and regression analysis, and all statistical methods established positive correlation, which proved that climate of innovativeness

affects organizational effectiveness through the perception of faculty and staff of the university.

I. Introduction

Companies are facing challenges incessantly given the ever changing needs of the industry. Satisfying every consumers wishes, environments are steadily becoming more complex, fast moving and dynamic (Thornton, Hollenbeck & Johnson, 2009), forcing the organization to meet several different challenges, such as a raised ambiguity and unpredictability, an increasing competition and growing time pressure (Navarro, Quijano, Berger & Meneses, 2011). These necessitate companies to keep updating themselves to sustain competitiveness in the market. As the business sector is faced with so much pressure given the competition in the market, universities on the other hand, are pressured to produce graduates that are highly qualified to endure the challenges and demands of the market. This seems to be very interesting issue because the education system should create opportunities to develop creative competence among students and graduates. It's the degree of orientation of universities and staff employed there, including degree of their creativity, depends on how students, and thus potential employees of the future will have competencies enabling them to be competitive (Sokol et al., 2015). In other words, schools and universities are called to continuously update and

innovate itself to adjust to the increasingly changing business environmental conditions.

Van de Ven (1986) suggests that in order for innovation to occur in organizations, employee attention needs to be directed toward creating new products, processes, and services crucial to the organization's survival. A strong climate for innovation may act as a way of focusing employee attention and creating a collective mentality that is supportive of innovation. Research consistently demonstrates that climate for innovation is linked to actual innovation. Innovation climate refers to the perception of employees towards innovation consisting of worker's feelings, attitudes, and behavioural tendencies measured by their perceptions. Consequently, if there is a strong innovation climate, employees feel like innovation is valued and believed to be rewarded for innovative behaviours.

Innovativeness was pointed out by Schemerhorn (2008), as one dimension in the preparedness and probable success of any organization because by being innovative, new and creative ideas are taken in and practiced. In many instances, being innovative entails a process of change. It is this process that interested the researcher to conduct this study and to determine the extent of innovation climate of faculty and administrative staff of the different schools in University of Asia and the Pacific (UA&P) and its relation to organizational effectiveness. Innovativeness is a condition where people commit themselves to changing for the better. It begins

with individual effort that when collectively accepted permeates the whole school environment. Measuring innovation climate is an important aspect of the organization especially in implementing new policies and procedures important for a growing organization such as UA&P.

Significance of the Study. There are a number of literatures and studies that were conducted related to innovative climate in the context of business and corporate entrepreneurship but is uncommon among researches to examine the school climate innovativeness of higher education institutions (Sokol et al. 2015). Hopefully, this study will contribute in filling the need to substantiate studies related to the relationship between innovative climate and organizational effectiveness among schools.

Results of this study will be of help to teachers and staff to determine weaknesses and encourage them to push themselves to the direction of using creative strategies and techniques. It is also beneficial to the administrators of the university for this yield important information about the innovation climate and the perceptions of the different employees. The results of the study may encourage other researchers to further investigate variables related to climate innovativeness and effectiveness and expand the scope of the study to a bigger market. By examining these variables, the researcher can give strategic recommendations on how to improve and strengthen the innovation climate of the university for planning and

implementation of new approaches and policies to achieve a better level of organizational effectiveness.

Moreover, this study does not only aim to add to the increasing body of literature in this area, but also strengthen theories presented by other researchers in the field of educational institutions.

Review of Related Literature

Concept of Innovation. Osterwalder and Pigneur (2010) identified 9 building blocks to innovate the business model of companies, namely: value proposition, customer segments, channels, customer relationships, key activities, key resources, key partners, revenue streams and cost structures. Following the business model, would allow the business to determine the needs of the market and gain competitive advantages against its competitors.

In this study, innovation refers to any departure from a traditional practice. It includes both the process of changing and acceptance of something new in outlook, structure or paradigm (Prieto, 2010). Such idea was discussed by Tubin (2009) by stating that establishing an innovative school requires a great deal of planning effort, human power and resources. T.O'Banion (1989); Wibbeke (2009), in education, innovation is manifested by any new organizational structure, new

educational program, and new approach to teaching and new ways to serve the community in response to the needs of non-traditional students.

Innovation Climate. Climatic Factors for Innovation. Goran Ekvall (1999), professor emeritus of organisational psychology at the University of Lund, Sweden spent many years looking at the organisational climatic factors (or dimensions) which affects organisational creativity. He identified the following dimensions of the innovation climate.

Table 1: Organizational Climatic Factors According to Goran Ekvall

Dimension	Description
Challenge and Involvement	The degree to which people are involved in daily operations and long term goals. The climate has a dynamic, electric and inspiring quality. People find meaning in their work and are intrinsically motivated to invest much energy. The opposite is a feeling of alienation, indifference, apathy and lack of interest. Most people here strive to do a good job
Freedom	Independence in behaviour. Autonomy to define much of work. Taking initiative. Opposite - strict guidelines and roles. Work carried out in prescribed ways with little room to redefine their tasks. People here make choices about their own work.
Trust & Openness	Emotional safety in relationships. When a level of trust, individuals can be open and frank with each other. Can count for personal support. Have

	respect. Opposite is suspicion, closely guarded, cannot communicate openly. People here do not steal each other's ideas.
Idea Time	Amount of time can use and do use for elaborating ideas. Possibilities exist to discuss and test impulses that are not planned or included in task assignment. Slack. Opposite - every minute booked. Time pressures make thinking outside instructions and planned routines impossible. One has the opportunity to stop work here in order to test new ideas
Playfulness and Humour	Spontaneity and ease displayed in the workplace. Relaxed atmosphere where jokes and laughter occur often. Fun at work. Easy going. Opposite is seriousness, stiff and gloomy atmosphere. Laughter is in proper. People here have a sense of humour.
Conflicts	Personal & emotional tension. Conflict high. Interpersonal warfare. Plots, traps, power struggles. Slander, gossip. Opposite is more mature, deal effectively with diversity. There is a great deal of personal tension here.
Idea Support	The ways new ideas are treated - attentive, listened to, encouraged. Constructive & positive atmosphere. Opposite automatic 'no' prevailing, suggestions refuted by counter argument. Fault finding usual style. People here receive support and encouragement when presenting new ideas.
Debates	Discussion of opposing opinions and sharing diversity of perspectives. Opposite - follow authoritarian patterns without questioning. Groupthink. Many different points of view are shared here during discussion.

Risk Taking	Tolerance of uncertainty and ambiguity in workplace. Bold new initiatives taken when outcomes unknown. Take a gamble, out on a limb. Opposite is cautious, hesitant mentality. Sleep on it, safe side. Committees to cover themselves before making a decision. People here feel as though they can take bold action even if the outcome is unclear

Ekvall (1999) defined the nine (9) dimensions of the climate for innovation, which were grouped into three (3) areas according to: Resources, Personal Motivation, and Exploration by Prieto (2010).

I. Resources (Idea Time, Idea Support, and Challenge & Involvement)

II. Personal Motivation (Trust and Openness, Playfulness and humor, & Absence of interpersonal conflicts)

III. Exploration (Risk-taking, Debates about the issues, and Freedom)

Lunenburg and Ornstein, (2008) provided the framework for showing how schools differ through their research into school climate. Halpin (1966) said that anyone who visits more than a few schools would immediately see how schools differ from each other in their "feel" (atmosphere). It was in his study that organizational climate became synonymous with the "personality" of the school. Such "personality" can be described as an energetic, lively organization that is moving toward its goals and that provides satisfaction for its members.

It is a reality that we live in a world of radical changes, such changes occurring deeply influence not only all societies and individuals but also all organizations no matter what their main areas of engagement are. In the study of Bülbül (2010), it was discussed that the process of change, only those organizations which adopt the innovative culture and successfully achieving the innovative structure in them get enormous gains in terms of environmental fitness and adaptation to developments. Therefore, innovation should be created and sustained within the organization (Dobni, 2006).

In the field of education, there is a rapid spread of a knowledge-based society, creation of innovative knowledge is increasingly considered to be critical to the competitiveness of the individual as well as the organization, which include creation and transfer of knowledge to prepare people to be economically competitive and to be successfully socialized member. Hoy & Miskel (2013) recognizes the key role of teachers in leading the "technical core: teaching and learning "in schools, teachers are perpetually expected to be knowledge workers who continue to create, develop, and share knowledge and skills in their workplace (McCharen, Song, & Martens, 2011). This leads to greater attention to teachers' ability to create knowledge and develop organizational environments that encourage teachers' active involvement in knowledge creation (Song et. al., 2014)

Organizational Climate. There are many studies that prove that creative organizational climate is one of the most important elements that play a significant role in the development of creativity. Climate is what members of the organization experience, and culture is a reflection of the values of the organization. The climate is variable, determined by organizational and psychological processes, which, in turn, affect the overall performance and good results of the organization (Sokol et al., 2015).

Açikgöz and Günsel (2011) mentioned that the literature on organizational climate addresses an important phenomenon: the creation and influence of social contexts in organizations. Climate refers to a contextual situation at a given time and its association with the thoughts, feelings, and behaviors of organizational members. Organizational climate was considered as an attribute of the organization, a conglomerate of attitudes, feelings and behaviors that characterized the daily life of the organization (Açikgöz and Günsel (2011), Ekvall (1987)). As affecting the daily life and processes within the organization by shaping the attitudes, feelings and behaviors, climate plays the part of an intervening variable for creating motivating, learning, commitment and eventually innovation (Ekvall, 1996).

Organizational climate is one element of the work environment. Tidd & Bessant (2009), proved that a supportive work climate can promote innovation. This is further supported by the previous study of Amabile et al. (1996), which states that

work environment awareness can influence the degree of creativity as well as innovation within the organization.

For Amo and Kolvereid (2005), one of the ways to foster growth in a large or small business is to give employees choice to begin and implement innovation within the organization. This pave way to intrapreneurs, employees who turn ideas into realities in an organization (Pinchot and Pellman, 1999).

Organizational Effectiveness. Ashton & Webb (1986) and Schunk (1989) defined effectiveness in the educational context as the extent to which teachers believe their efforts will have a positive effect on their students' abilities, in redirecting their students' behavior, and on overall student achievement. In the study of Jaafari et al. (2012), it was identified the organizational climate is one major factor that affects organizational effectiveness. The study of organizational climate in social units is founded on Levin classic model in which it has been indicated that behavior is formed by interactions between people and their environments. Professional position or organizational environment create an atmosphere that affects the behavior of the members of that organization (Pourseif, 2006). On the other hand, Ahuja and Gautam (2012), organizational effectiveness is a complex, situational, real, non-standard, multifaceted construct, which cannot be ignored in any organization.

Leadership. According to Smith (1997) there are certain organizations have unintentionally created many barriers and obstacles to innovation and creativity. Also, educators recognize that for climate innovativeness to flourish, it has to be fully supported by the organization's leadership. It was mentioned in his study that administrator's leadership shapes the school's learning climate and the level of the relationship between staff and the teacher morale. This is further supported by Wang et al., (2013), as they mentioned that through inspirational motivation, the leader signals to subordinates about the expectations for potential creative behavior and organization's intention of being supportive for innovation and hence encourage to take risks and champion innovation.

Nystrom (1990); Scott & Bruce (1994) also have proven that one way of achieving a strong climate for innovation is through leader behavior. Other studies have shown that climate for innovation is associated with strategic leadership (Nystrom, 1990) as well as Leader Member Exchange Theory (Scott & Bruce, 1994). Thus, an important way to impact climate for innovation can be influenced by leadership behaviors. Current findings, however, provide only a limited view of the relationship between leader behavior and climate for innovation, particularly in the area of educational institutions, leaving many aspects of this relationship unexplored.

Preliminary evidence also suggests that leaders can affect climate for innovation. Nystrom (1990) presented a case study of a Swedish organization that suggested strategic or innovative leadership can impact organizational climate for innovation. According to his model, leadership can affect climate both directly and indirectly through impacting the innovative direction and innovative potential of the organization. More experimentally rigorous work by Scott and Bruce (1994) demonstrated that leader behaviors put forth by Leader Member Exchange Theory (LMX) predict climate for innovation. Specifically, the higher the level of relationship between the leader and the follower, (i.e. the more support, trust, and autonomy), the more innovative subordinates perceived the climate for innovation to be.

A number of researches mentioned above proved that leadership played an important role in creating an innovative climate in an organization. Sergiovanni (1984) mentioned that educational organizations are much too complex for effectiveness to be attributed to any single dimension. As for Perilla (2005), leadership through the promotion of an organizational climate means building of attitudes and behavioral norms that exemplify the best that a school stands for. This highlights the role of school administrators to manage and lead the school toward the attainment of its goals and objectives and the fulfilment of its vision and mission.

Job Satisfaction. Empirical researches have shown that there is a strong relationship between organizational climate perceptions and job attitudes, such as organizational commitment and job satisfaction (Wang & Ma, 2013). From the innovation work climate (Ekvall and Isaksen, 2010) that fosters an upbeat environment where workers are to be open-minded, to try new ideas, and to not be afraid of failure came about the conceptual model of Wang & Ma (2013), which builds on the research on motivation, learning, and creativity.

Gormley (2010), Sharma and Jyoti (2009) discussed that individuals who are satisfied with their jobs have high levels of motivation and organizational commitment. This is based on the study of Herzberg et al's (1959) Motivation-Hygiene Theory of Job Satisfaction, noted as the pioneer researcher in the field of motivational theories.

Organizations benefit from the employees who are committed aside from the fact that companies save a lot of money with less employees' turnover. One important factor to increase organizational effectiveness is job satisfaction, which is the most researched attitude in the organizational context and has been shown to impact organizational commitment positively (Arnett, Frits & Bell (2009), Meyer, Stanley, Herscovitch & Topolnytsky (2002)).

Organizational Commitment. In many literatures, work engagement and organizational commitment are used interchangeably, where work engagement is said to be as a "positive, fulfilling, work-related state of mind that is characterized by vigor, dedication, and absorption (Schaufeli, Salanova, Gonzalez – Roma, & Bakker, 2002). For school teachers, work engagement can be characterized by high levels of energy, vigor, and psychological resilience, devotion to their work, and endure when confronted with difficulties (Hakanen, Bakker, & Schaufeli 2006). More importantly, as highlighted by Bakker, Albrecht, & Leiter (2010), work engagement has a positive relationships with extrinsic and intrinsic motivation.

Some authors have argued that organizational commitment, as a construct, is too broad for effective organizational analyses (Benkhoff, 1997). In response, Meyer and Allen (1991) proposed a distinction between the dimensions of affective commitment, continuance commitment and normative commitment. Affective commitment refers to employees' perceptions of their emotional attachment to or identification with their organization. Continuous commitment refers to employees' perceptions of the costs associated with leaving the organization. Finally, normative commitment refers to employees' perceptions of their obligation to their organization such as if an organization supported the employee's education, the employee may have higher degrees of normative commitment to the organization.

Literature Summary. As this study tries to prove the impact of climate of innovativeness to organizational effectiveness, many studies have shown that indeed there is a relationship that exist between the two. However, recent studies focused more on the innovative climate in the context of business and corporate entrepreneurship but is uncommon among researches to examine the school climate innovativeness and its effect on organizational effectiveness (Sokol, 2015). Another interesting insight related to the topic is the challenge on the educational system to create opportunities to develop competencies among students that is highly demanded by the business sector (Navarro et al., 2011). This then leads the study to take a closer look on the level of climate of innovativeness and organizational effectiveness in the school setting.

Fidan and Ozturk (2015) mentioned in their study that the climate for innovation is related with organizational outputs comprising the benefits of ideas, significant innovations, and satisfaction of the employees. West and Farr (1990), highlighted that innovativeness is a quality which is shared by majority or all professional as well as managerial personnel, and that, specified the suitable facilitating environments, innovativeness of any individual is possibly endorsed the environment for the work. The key is to create an environment that further increase innovation as well as creativity between and among employees.

Bülbül (2010) mentioned that the objective of creating innovation within the organization requires vision, deliberation and a strong belief. In addition, for a successful organization, the right conditions, structure, culture and climate should be created, as well as proper directions for the organization and innovation should encompass all areas and aspects of the organization. This is further supported by Watt (2002) that organization should be filled with the right people who possess the required skills, attitudes and behaviors towards innovation.

From the standpoint of organizational theory, an organization's innovation is greatly influenced by two factors: organizational system and climate, and employee's behaviors (Cummings & Worley, 2008). Also, the culture and climate of the organization influences the employees' willingness to engage in their tasks (Garvin, 1993; McCharen et al., 2011). To be specific, a supportive organizational climate is positively associated with employee's collaborative actions and work engagement, both of which lead to organizational learning activities that form the basis of knowledge creation practices in the workplace (Bae et al., 2012; Dixon, 2000; McCharen et al., 2011; Nonaka & Takeuchi, 1995).

Ashraf and Khan (2013) presented the association between organizational innovation and effectiveness. In the said study, results suggest that innovation indeed predict firm effectiveness from among employees in cellular companies. This is also the same for the study of Prieto (2010), which revealed a strong

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positive correlation between school climate innovativeness and organizational effectiveness. The framework of Prieto (2010), adopting ideas of Haynes (2001), Miskel (2008), and Gorton (2007), discussed that school climate is the sum total of, and the dynamic interactions among psychological academic and physical dimensions of the school's environment. While Gorton (2007) said that perceptions provide an important gauge for measuring school climate.

CONCEPTUAL FRAMEWORK

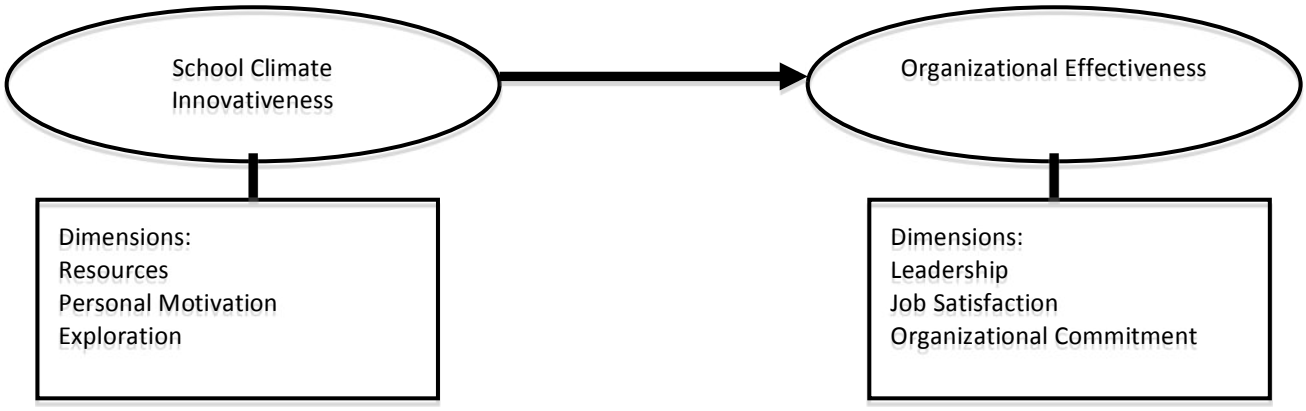

Figure 1. Research Paradigm (Prieto, 2010)

Using the framework presented by Prieto (2010), this study will determine the relationship of Climate Innovativeness and Organizational Effectiveness through the perception of the Faculty (Academic) and Staff (Non-Academic) of UA&P. The conceptual framework of the study shows the school climate as the sum total and dynamic interactions among the psychosocial, academic and physical

dimensions of the schools. In relating school climate innovativeness to organizational effectiveness, the social system perspective was utilized which pointed at effectiveness as a composite of varied indicators such as: leadership, job satisfaction, and organizational commitment (Prieto, 2010). Of the many studies and literatures with different frameworks used, the researcher adopted Prieto's framework for it was formulated for educational institutions, which fits perfectly with the study at hand.

Operational Definition of Terms

Climate. This refers to the trend of opinions and attitudes pervading in the workplace.

Innovation. This is both the creating and bringing into profitable use of new technologies, new products, new services, new marketing ideas, new systems and new ways of operating. Implementation is generally the bottleneck that limits the rate of innovation.

School climate innovativeness. This refers to a working environment that can cope with new needs of its clientele. In the context of a school, it means a learning environment that can effect changes/ improvements as new needs of organization stakeholders arise.

Organizational effectiveness. This is the concept of how effective an organization is in achieving the desired outcomes for the organization and its stakeholders.

Research Problem / Hypothesis / Objectives

Management Dilemma:

Is there a significant relationship between school climate innovativeness and school organizational effectiveness through the perception of the faculty and staff?

Hypothesis:

Ha: There is a significant relationship between school climate innovativeness and school organizational effectiveness through the perception of the faculty and staff.

Ho: There is no significant relationship between school climate innovativeness and school organizational effectiveness through the perception of the faculty and staff.

Objectives of the Study

1. To assess the level of Innovation Climate of faculty and staff in terms of Resources, Personal Motivation, and Exploration (taking risk)
2. To assess level of Organizational Effectiveness in terms of Leadership, Job Satisfaction, and Organizational Commitment

3. To determine the difference in the perceptions of faculty and staff in terms of innovation climate and organizational effectiveness.
4. To determine the impact of climate innovation on organizational effectiveness
5. To list down strategies on how to improve and strengthen the climate of innovativeness for better organizational effectiveness.

II. Method

Scope and limitation. This study focuses on the faculty (academic) and staff (non-academic) of the different schools of UA&P namely, School of Management, School of Communication, School of Economics, School of Science and Engineering, School of Law and Governance, College of Arts and Sciences, and School of Education. The survey will only cover school year 2015-2016.

Research Design. This study made use of a survey questionnaire to gather the needed quantitative data. Data was collected using self-administered questionnaire that were personally sent to the respondents.

The questionnaire consisted of four parts: The first part was introduction to explain the purpose of the research. In the second part, two questions were considered to define respondent's demographic data. The third part had three categories that

determines school climate innovativeness. Each of the three categories had 11 questions, which were all evaluated using a 5-point likert scale. The last part of the questionnaire covered school organizational effectiveness, which also contained three categories with 12 questions per category to be answered using a 5-point likert scale. The questionnaire was adopted from the dissertation of Prieto (2010). The questionnaire was also tested according to the degree of its reliability using Cronbach's Alpha and all dimension under each variable scored equal or higher than .70, which indicated questionnaires desirability and validity.

Population. The respondents of this study were the faculty (academic) members and staff (non-academic) of the different schools of UA&P. The survey were sent to all faculty and staff of all different target schools in UA&P. Only the faculty and staff in the academic programs were chosen because of their direct influence towards the overall development of the students. Total expected respondents were 165, with 113 academic members and 52 non-academic staff. Actual respondents totalled to 105, 74 faculty members (academic) and 31 staff (non-academic) as presented in tables 2 & 3.

Table 2: Number of Faculty and Administrators the Participants

School / Department in UA&P	Frequency	Percent
College of Arts and Sciences	32	30.5%
School of Communications	5	4.8%
School of Economics	17	16.2%
School of Education and Human Capital	13	12.4%
School of Law and Governance	6	5.7%
School of Management	23	21.9%
School of Science and Engineering	9	8.6%
TOTAL	**105**	**100%**

Table 3: Position of

	Frequency	Percent
Faculty (Academic)	74	70.5%
Administrator (Non-Academic)	31	29.5%
TOTAL	105	100

Data Analysis. The data gathered were treated statistically by means of the following:

1. Frequency count and percentage was used to present the demographic profile.
2. Descriptive Statistics were used to summarize and describe the gathered data per dimension under

each of the major variables.

3. Test of Difference according to position to determine if there was a disparity on the perception

among academic and non-academic respondents.

4. One-way analysis of variance was used to determine whether there were any significant differences

between academic and non-academic respondents.

5. Pearson correlation, anova, and regression analysis were used to determine relationship between

school climate innovativeness and organizational effectiveness through the perception of academic and non-academic members of the university.

II. RESULTS

Table 4: Descriptive Statistics

	Mean	Standard Deviation
Climate of Innovativeness		
Resources as Perceived by Faculty and Administrators	3.9090	.662428
Personal Motivation	3.65	.588
Exploration (Risk-taking, Debates in Issues, Freedom)	3.6173	.567404
Organizational Effectiveness		
Leadership and Management Style	3.3365	.878725
Job Satisfaction	3.8063	.75572
Organizational Commitment	3.58	.480

The three dimensions under climate of innovativeness resulted a 3.91, 3.65, and 3.62 averages implying that all three were satisfactory assessed by the respondents. Whereas the standard deviations of the three dimensions of climate of innovativeness indicated varying answers of relatively low and high scores. As for the dimensions under organizational effectiveness, results were similar to climate of innovativeness as 3.34, 3.81, and 3.58 averages only implies that the above mentioned dimensions were also satisfactory assessed by the respondents. One

significant finding in this descriptive statistics is the variations in standard deviation under organizational effectiveness. Leadership and Management Style as well as Job Satisfaction indicated varying answers of extremely low and high scores as against to Organizational Commitment which showed relatively low and high scores.

Table 5: Test of Difference According to Position

		Mean	**Standard Deviation**
Climate of Innovativeness			
Resources as Perceived by Faculty and Administrators	Academic Non-Academic	3.8402 4.0484	.70479 .51244
Personal Motivation	Academic Non-Academic	3.61 3.72	.620 .503
Exploration (Risk-taking, Debates in Issues, Freedom)	Academic Non-Academic	3.5884 3.6696	.60643 .46138
Organizational Effectiveness			
Leadership and Management Style	Academic	3.2781	.87403

	Non-Academic	3.4333	.87109
Job Satisfaction	Academic Non-Academic	3.7680 3.8806	.79180 .66906
Organizational Commitment	Academic Non-Academic	3.55 3.66	.525 .337

Majority of the test of difference statistics showed a discrepancy ranging from 0.1 to 0.2 and some figures were essentially the same when rounded-off. This only indicates that, although the sample size for each position differs, their responses were close to each other based on average. The perceptions of the respondents toward the different dimensions can be said as essentially the same or close to one another; for both faculty and administrative staff.

Table 6: Independent Samples Test

	Levene's Test for Equality of Variances		**T-Test for Equality of Means Standard Deviation**	
Climate of Innovativeness	F	Sig	t	Sig
Resources as Perceived by Faculty and Administrators	1.149	.286	-1.467	.146
Equal variances assumed			-1.674	.098
Equal variances not assumed				
Personal Motivation				
Equal variances assumed	.982	.324	-.930	.355
Equal variances not assumed			-1.016	.313
Exploration (Risk-taking, Debates in Issues, Freedom)	3.170	.078	-.660	.511
Equal variances assumed			-.740	.462
Equal variances not assumed				
Organizational Effectiveness				
Leadership and Management Style				
Equal variances assumed	.001	.974	-.821	.414
Equal variances not assumed			-.822	.415
Job Satisfaction				

Equal variances assumed	1.062	.305	-.685	.495
Equal variances not assumed			-.736	.465
Organizational Commitment				
Equal variances assumed	5.111	.026	-1.072	.286
Equal variances not assumed			-1.282	.204

Only Exploration, at 10% degree of error, and Organizational Commitment, at 5% degree of error, were assumed with equal variances. With regards to T-test for equality of means, with 10% level of significance, only resources is statistically significant. The null hypothesis for resources can be rejected at 10% level of significance which means that in terms of resources, the two positions differ in their perspective. For the other factors, the two types of respondents do not differ significantly at 5% level of significance.

Table 7: Analysis of Variance According to School

		CAS	SCM	SEC	SED	SLG	SMN	SSE
Climate Innovativeness								
Resources	Mean	3.969	3.473	3.989	3.762	3.182	3.929	4.434
	SD	.511	.699	.462	.981	.524	.713	.339
	SE	.0904	.313	.112	.272	.214	.149	.113
Personal	Mean	3.62	3.51	3.78	3.56	3.14	3.64	4.04

Motivation	SD	.480	.676	.530	.806	.358	.630	.490
	SE	.085	302	.129	.224	.146	.131	.163
Exploration	Mean	3.577	3.436	3.705	3.608	2.879	3.668	4.071
	SD	.421	.756	.425	.737	.547	.602	.403
	SE	.074	.338	.103	.204	.223	.125	.134
Organizational Effectiveness								
Leadership &	Mean	2.982	3.517	3.358	3.558	2.111	3.616	4.241
Management Style	SD	.763	.805	.799	.860	.609	.809	.407
	SE	.135	.360	.194	.238	.249	.169	.136
Job Satisfaction	Mean	3.823	3.383	3.878	3.827	2.889	3.801	4.426
	SD	.583	.796	.518	1.115	.421	.174	.430
	SE	.103	.356	.126	.309	.172	3.448	.143
Organizational	Mean	3.59	3.35	3.69	3.45	3.17	3.62	3.89
Commitment	SD	.382	.619	.394	.556	.350	.586	.346
	SE	.068	.277	.095	.154	.143	.122	.115

College of Arts and Science (CAS), School of Communication (SCM), School of Economics (SEC), School of Education (SED), School of Law and Governance (SLG), School of Management (SMN), School of Science and Engineering (SSE)

All Schools except for SSE have satisfactory ratings in all dimensions under climate of innovativeness and organizational effectiveness. SSE has higher rating

against all other schools. Difference in perceptions varies strongly in the SED having extremely high standard deviations.

Table 8: A brief view on computing one-way ANOVA for measuring the difference in perception between faculty and staff with respect to climate innovativeness and organizational effectiveness

		Sum of Squares	df	Mean Square	F	Sig.
Climate of Innovativeness	Between Groups Within Groups Total	7.121 38.515 104	6 98 104	1.187 .393	3.020	.009
Organizational Effectiveness	Between Groups Within Groups Total	8.574 32.622 41.196	6 98 104	1.429 .333	4.293	.001

The values of F and level of significance showed significant differences in perception between faculty and staff in terms of Climate of Innovativeness and Organizational effectiveness.

Table 9: A brief view on computing one-way ANOVA (Analysis of Variance) for measuring the difference in perception between faculty and staff with respect to the dimensions of climate innovativeness and organizational effectiveness

		Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Climate of Innovativeness						
Resources as Perceived by Faculty and Administration	Between Groups Within Groups Total	7.121 38.515 45.636	6 98 104	1.187 .393	3.020	.009
Personal Motivation	Between	3.462	6	.577	1.737	.120

	Groups Within Groups Total	32.547 36.009	98 104	.332		
Exploration	Between Groups Within Groups Total	5.533 27.950 33.483	6 98 104	.922 .285	3.233	.006
Organizational Effectiveness						
Leadership and Management Style	Between Groups Within Groups Total	22.997 57.307 80.304	6 98 104	3.833 .585	6.554	.000
Job Satisfaction	Between Groups Within Groups Total	9.500 49.895 59.396	6 98 104	1.583 .509	3.110	.008
Organizational Commitment	Between Groups	2.602 21.384	6 98	.434 .218	1.987	.075

	Within Groups	23.986	104			
	Total					

Using ANOVA to test the equality of the mean, at 5% level of significance, Faculty and Staff had different level of perceptions in terms of the following areas: Resources as perceived by Faculty and Staff, Exploration, Leadership and Management Style, and Job Satisfaction. Faculty and Staff perceptions do not have significant differences in terms of Personal Motivation and Organizational Commitment.

Table 10: Correlation Test

	RP	**PM**	**EX**	**CI**	**LM**	**JS**	**OC**	**OE**
Resources as Perceived by Faculty and Administration (RP)	-							
Personal Motivation (PM)	.838**	-						
Exploration (EX)	.793**	.774**	-					
Climate of	.947**	.934**	.913**	-				

Innovativeness (CI)								
Leadership and Management Style (LM)	.599**	.495**	.595**	.605**	-			
Job Satisfaction (JS)	.883**	.783**	.805**	.886**	.718**	-		
Organizational Commitment (OC)	.787**	.735**	.748**	.813**	.545**	.797**	-	
Organizational Effectiveness (OE)	.832**	.731**	.789**	.843**	.891**	.937**	.827**	-

** Correlation is significant at the 0.01 level (2-tailed)

Table 10 revealed that all correlations among variables were positive. Also, climate innovativeness and organizational effectiveness, correlate positively. Specifically, climate of innovativeness exhibits high correlation with resources, personal motivation, and exploration as their level of significance is close to 1.0 while organizational effectives shows high correlation with leadership and management style and job satisfaction.

Table 11: Impact of Climate Innovativeness on Organizational Effectiveness

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.813[a]	.661	.658	.281

a. Predictors: (Constant), Climate Innovativeness

As indicated in table 11, 66% of the variance of organizational effectiveness is attributed to climate of innovativeness. This only means that there is a relatively good fit between climate of innovativeness and organizational effectiveness.

Table 12: ANOVA[a]

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	15.858	1	15.858	200.950	.000[b]
Residual	8.128	103	.079		
Total	23.986	104			

a. Dependent Variable: Organizational Effectiveness

b. Predictors: (Constant), Climate of Innovativeness

Using Anova (table 12), given a high F stat and almost 0% significance level, the correlation of Organizational Effectiveness and Climate of Innovativeness is very high.

Table 13: Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std Error	Beta		
Constant	1.011	.184		5.508	.000
(Climate of Innovativeness)	.691	.049	.813	14.176	.000

a. Dependent Variable: Organizational Effectiveness

The results shown in table 13, further supports that climate of innovativeness has a positive impact to organizational effectiveness with beta value 0.813 and p-value 0.000 and the results are highly significant at 1% level of significance which means that one unit increase in the level of climate innovativeness the level of organizational effectiveness is increase by 0.813 units that results supports the hypothesis.

DISCUSSION

The results were similar to the findings of Farrukh et al. (2014) and Prieto (2010) as they concluded in their study that innovation climate has positive effects on

organizational effectiveness and corporate entrepreneurship. Açikgöz and Günsel (2011), also provided empirical evidence that organizational climate is related to team innovativeness in the business context.

Jaafari et al., (2012), validated the results as it discussed that affecting organizational learning both affects organizational climate and teachers' self-efficacy. The results of this study affirm the study Ashraf and Khan (2013), that organizational innovation predicts effectiveness.

McLean (2005), also agreed with the study as he said that for innovation to take place in a firm, its members must feel that the environment favors the freedom to function in a creative manner. That in an environment characterized by honest debate, employees are open to risk taking and creativity as they sense that the organization believes in the greatest interest for all. This is further supported by the research work of Ramirez Heller et al. (2014) stating that a team climate conducive to learning and innovation has been proved to be a significant predictor of group performance, support for innovation and team effectiveness. Hill et al. (2014), also supported the output as it discusses the input of co-founding team climate for innovation affects processes of co-founding team member exchange and co-founding team learning which in turn impact the collective efficacy of the co-founding team, and subsequently, new venture performance.

The current size of the university allowed open interaction between faculty, staff, and administrators which paved way towards faster adaptation of innovation leading UA&P as a trail blazer in discovering and delivering new programs. As a young university, UA&P has so much potential in creating climate of innovativeness in order to motivate its faculty and staff towards overall organizational effectiveness, particularly honing and developing highly competitive graduates who will be future business leaders.

This study confirms many existing researches as it empirically tested that there is a positive relationship between climate innovativeness and organizational effectiveness.

Recognizing the limitations of this research that it only covered one university, it is advisable for future research to extend the sample, covering at least the top three universities in the Philippines. It may also contribute to the overall improvement of the educational system if this study can be conducted comparing the performance of public and private schools. Doing so, faculty and staff perception analysis will be strengthened and will become more meaningful. Output of such study will add more to the growing body of literature on climate of innovation and organizational effectiveness.

CONCLUSION

The results of the study shows a strong positive correlation between climate of innovativeness and organizational effectiveness based on the perceptions of the faculty and staff of UA&P. The strong positive correlation indicated that as the level of climate of innovativeness increases within the university, faculty and staff would work towards improving overall organizational effectiveness, thus supporting the hypothesis.

Schools in particular UA&P must recognize the importance of continuously improving climate of innovativeness that directly affects faculty and staff to improve organizational effectiveness. As Janeiro et al. (2013) found that successfully innovating firms use universities to a greater extent in their innovation activities and this might indicate the firms' recognition of the role that universities play in knowledge development, which is one reason for the need of climate of innovativeness in schools as it leads to organizational effectiveness, which can be measured in terms of students' successes or business firms recognition.

Perception of faculty and staff differs in terms of two dimensions: Resources and Exploration. Given this, it is advisable for the school administrators to consider improving the resources as well as allowing them to take on more calculated risk (exploration) but still observing the culture of the university. With the change of

leadership, the university is at an advantage to take on new ways and means to improve climate of innovation creating spontaneity, ease displayed in the workplace, and having some tolerance to uncertainty and ambiguity allowing faculty and staff to enhance and sustain effectiveness in the organization.

Given the results of this study, it can be said that administrators must be extra sensitive in providing and enhancing climate of innovativeness in order to motivate faculty and staff and eventually translate this to the increase in the overall organizational effectiveness.

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Satisfaction of Residential Apartment Lessees: An Entrepreneur's Guide

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Abstract

Understanding what residential lessees find important and what contributes to their satisfaction is important for property managers, owners or entrepreneurs. In this study tenants who currently rent an apartment or condominium in Metro Manila, the capital of the Philippines, were asked which factors they consider most important when selecting a place to live.

The factors considered most important were studied to see if they contribute to a tenant's overall satisfaction.

The results show that Internet Access availability, a Security Guard, an Onsite Handyman and Fire Protection in the Building can predict a tenant's overall satisfaction for 70%. Factors like Location, Rental Rate, and Apartment Size,

amongst others, do not significantly affect the Overall Satisfaction, but are considered a pre-requisite for tenants.

Satisfaction of Residential Apartment Lessees in the Metro Manila: An Entrepreneur's Guide

Early studies related to tenant satisfaction focus on generic models, conceptual frameworks, and discuss categorization of variables. Property and neighborhood development were categorized as physical characteristics while perception about other residents, management, and the community were categorized as social characteristics (Weidemann & Anderson, 1985; Johnson & Abernathy, 1983; Cutter, 1982; Davis & Fine-Davis, 1981; Anderson & Weidemann, 1980; Snider, 1980; and Francescato, G. et al., 1974).

In the years that followed researchers focused more on tenants' satisfaction in specific settings. Some studied property specific characteristics such as high-rise, multifamily, or owner-occupied (Potter et al., 2001; Carvalho, George & Anthony, 1997; Guney, 1997; Rohe & Basolo, 1997; Oseland & Raw, 1996; Ang, 1995; Montero, 1991; Amerigo & Aragones, 1990). Others focused on characteristics of neighborhood and environment, e.g. schools, climate, or transportation (Gifford, 1987; Cutter, 1982; and Galster & Hesser, 1981).

More recent studies include constructs and variables like Property Management, Internet Provisioning, Recreational Facilities, and Service Quality (Mridha M., 2015; Rahman, M. S., Hussain, B. & Uddin A. N. M. M., & Islam N., 2015; Zadkarim, S. & Emari H., 2011; and Baharum Z.A., Nawawi A.H. & Saat Z.M., 2009).

Customer satisfaction is the difference between what a customer "expects to receive" and what a customer actually "perceives he/she has received". What one "expects to receive" differs from person to person since it is based on experience, climate, upbringing and culture, among other satisfiers.

It is impossible to arrive at a collectively exhausted list of determinants which can be applied to test *satisfaction of residents* in all climates, cultures and life styles; variables used to determine the satisfaction of tenants in rural areas in cold and less developed Siberia will differ from the variables used to determine the satisfaction of tenants in hot and developed Singapore. Existing research often limits itself to a particular geographical area.

Where segmentation based on type of property ownership is part of the study, the vast majority of research focuses on individual real estate owners while research related to satisfaction levels of residential lessees is very rare.

This is surprising, given that some items are distinctively different. The construct Services when pre-selling apartments under development might include variables related to Financing, Legal Issues, and Timely Delivery; while Services in rented apartment might be better expressed using variables related to Maintenance and Cleanliness. In the first case the vast majority of services is provided before a unit is being occupied, in the second example the majority of services is provided during the dwelling.

Although one study touches the subject as part of research related to Mobility and Employment (Costello, M. A., Leinbach, T. R. & Ulack, R., 1987), the author has not found any published articles studying residential satisfaction in the Philippines, likewise no study was found focusing on residential lessees.

The objective of this paper is to first determine which variables are most important for residential lessees in the National Capital Region (NCR) of the Philippines. After that the most important factors are selected and tested to determine how they contribute to the overall satisfaction of the respondents.

Theoretical Framework

The constructs and variables are based on reviewed literature and discussions with industry experts. The list includes: *rates* (e.g. rental rates, initial cash layout [advance & deposit], penalties, and rent increases); the *location of the property*

(proximity to office, family, public transportation, malls, schools and market); *property characteristics* (design, maintenance, cleanliness, unit layout, unit size); the *environment* where the property is located (neighborhood, traffic, noise, smog); the *amenities* offered (parking, swimming pool, restaurant, internet, cable TV); how *secure* the property is (is it fenced, does it have access control, CCTV, a security guard); *safety factors* within the property (a building fire alarm, building hose/extinguishers and fire exit, a smoke alarm inside the unit, a sprinkler inside the unit, pro-active management like evacuation plans and fire or earthquake drills, and emergency lights); *services* offered in the property (an onsite handyman, an onsite landlord, in-house payment of utilities, coordination of water & laundry, food delivery); and how is the *management* (accessible around the clock, accommodating when being approached, responsive, reliable).

Each variable was given a name and sorted chronologically by construct as in this table:

Construct	***Variable 1***	***Variable 2***	***Variable 3***	***Variable 4***	***Variable 5***	***Variable 6***
Amenities	Parking	Pool	Restaurant	Internet	Cable	
Environment	Neighborhood	Traffic	Noise	Smog		
Location	Office	Family	Transportation	Malls	Schools	Market
Management	Available	Accommodating	Responsive	Reliable		
Property	Aesthetics	Maintenance	Cleanliness	Layout	Size	
Rates	Rent	Initial	Penalties	Increase		
Safety	Building_Protect	Building_Alarm	Unit_Protect	Unit_Alarm	Lights	Drills
Security	Fenced	Cards	CCTV	Guard		
Services	Handyman	Landlord	Payment	Coordination	Food	

Table 1. Constructs and the variables for each construct

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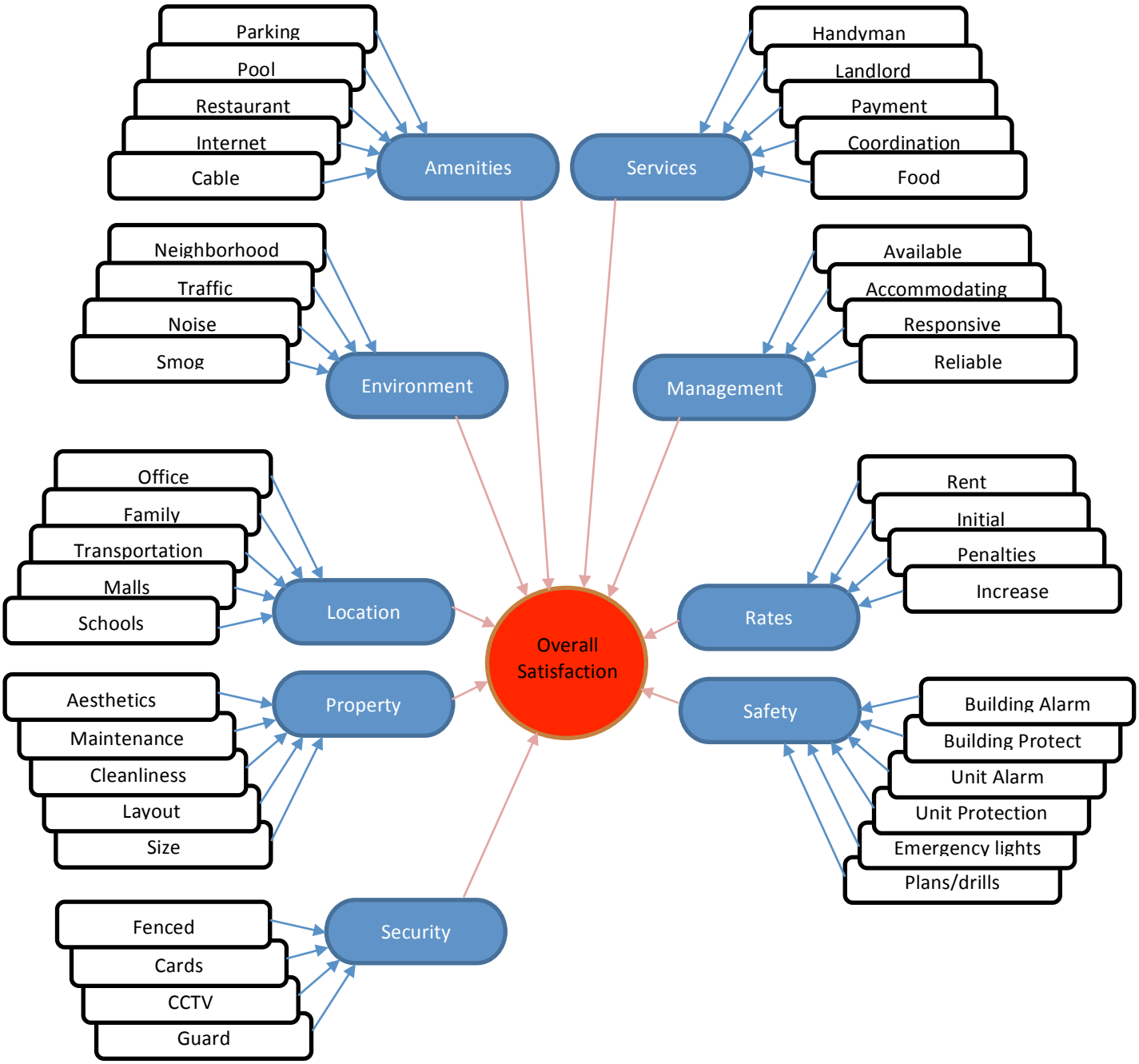
This diagram shows the relations between Overall Satisfaction (the Independent Variable) and the corresponding specific constructs (as Dependent Variables).



Hypotheses:

To determine which construct and variables are most important, respondents were asked what they would consider important if they were to select a new place to dwell. They were then asked how satisfied they were with the same constructs and variables in the place they currently rent. In the last part of the questionnaire participants were asked to indicate their Overall Satisfaction with the place where they currently rent.

The following hypotheses were formulated:

H1a: Residential lessees consider *having Internet* the most important Amenity;

H1b: *Internet Satisfaction* has a significant positive direct effect on the Overall Satisfaction

H2a: Residential lessees consider *No Noise* the most important Environment characteristic;

H2b: *No Noise Satisfaction* has a significant positive direct effect on the Overall Satisfaction

H3a: Residential lessees consider *Distance to Office* the most important item under Location;

H3b: *Distance to the Office Satisfaction* has a significant positive direct effect on the Overall Satisfaction

H4a: Residential lessees consider *Apartment Size* the most important Property characteristic;

H4b: *Apartment Size Satisfaction* has a significant positive direct effect on the Overall Satisfaction

H5a: Residential lessees consider a *Security Guard* the most important item under Security;

H5b: *Security Guard Satisfaction* has a significant positive direct effect on the Overall Satisfaction

H6a: Residential lessees consider a *Building Fire Protection* the most important item under Safety;

H6b: *Building Fire Protection Satisfaction* has a significant positive direct effect on the Overall Satisfaction

H7a: Residential lessees consider the *Monthly Rent* the most important item under Rates;

H7b: *Monthly Rent Satisfaction* has a significant positive direct effect on the Overall Satisfaction

H8a: Residential lessees consider *Responsiveness* the most important item under Management;

H8b: *Responsiveness Satisfaction* has a significant positive direct effect on the Overall Satisfaction

H9a: Residential lessees consider an *Onsite Handyman* the most important item under Services;

H9b: *Onsite Handyman Satisfaction* has a significant positive direct effect on the Overall Satisfaction

Method, Results, and Discussion:

Fifty three (53) people participated in the study. All were renting an apartment or condominium at the time of the survey. All participants worked and lived in Metro Manila, were randomly selected, and completed a structured questionnaire.

In the first section of the questionnaire, participants were asked to indicate the importance of each of the *constructs* assuming they were looking for a new place to live. They were then asked to indicate the importance of the *variables* for each of those constructs, still assuming they were looking for a new place to live. In this section participants ranked items from 'most important' to 'least important'.

In the second section of the questionnaire, participants were asked to indicate their satisfaction with each of the *constructs* in the place where they currently live. They were then asked to indicate their satisfaction with the *variables* for each of those constructs in the place where they currently live. A Likert Scale was used to indicate satisfaction level.

In the third section some personal (but anonymous) and general information was gathered and participants were asked to indicate their Overall Satisfaction with the place where they currently live.

Gender	Female 31 (58%)	Male 22 (42%)			
Age	Below 21	21-30	31-40	> 40	

	6 (11%)	23 (43%)	18 (34%)	6 (11%)	
Satisfaction	Very Unsatisfied 0 (0%)	Unsatisfied 5 (9%)	Average 23 (43%)	Satisfied 20 (38%)	Very Satisfied 5 (9%)
#People	Lives alone 11 (21%)	2-4 Family 22 (42%)	2-4 Others 15 (28%)	>4 Family 3 (6%)	>4 Others 2 (4%)
#Size	< $20m^2$ 5 (9%)	20 - $29m^2$ 17 (32%)	30 - $39m^2$ 12 (23%)	40 - $49m^2$ 13 (25%)	50 - $100m^2$ 6 (11%)
Recommend?	Absolutely not 2 (4%)	Unlikely 5 (9%)	Not sure 13 (25%)	Likely 23 (43%)	Absolutely 10 (19%)
Rate	< P10,000 14 (26%)	P10K-P14.9K 29 (55%)	P15K-P19.9K 7 (13%)	P20K-P29.9K 3 (6%)	
Who pays	Just me 21 (40%)	I share 25 (47%)	Someone else 7 (13%)		
Total Income	< P20,000 16 (30%)	P20k – P39.9k 29 (55%)	P40k-P59.9k 4 (8%)	P60k-P99.9k 1 (2%)	> P100,000 3 (6%)

Table 2. Respondents' Personal Information

Table 2 reveals that the majority of the respondents is between 21 and 40 years old, makes less than P40k, lives in a place with a rental rate below P15k, and is satisfied with the place where he/she currently lives.

The 2010 Census of Population and Housing (CPH) contains data of 11.8 million people in the National Capital Region (NCR). Children and teenagers (4.6 million) were excluded, since they don't rent. From the remaining group, the majority (4.2 million or 58%) was between the 20 and 40 years of age.

According to the census Family Income and Expenditure Survey (FIES) of 2012, the average annual family income in the NCR was P379k, around P27k net per month after considering tax and a 13th month. In this income category, expenditures represent 80% of total income and housing expenditures represents 31% of total expenditures. So on average an individual spends 25% of their income on housing.

The census surveys performed by the Philippine Statistics Authority (PSA) shows that the majority of the people in the National Capital Region is between 20 and 40 years old and makes less than P40k and spends around 25%on housing. This data is similar to the data presented in Table 2, implying that the sample data used in this study appears representative of Metro Manila's population.

Participants were asked to *rank constructs* based on importance assuming they would be looking for a new place to live. They were then asked to *rank the variables* for each construct by importance as well. Applying descriptive analysis on the constructs, variables under each were ranked to determine which variable is most important:

Construct (ranked by importance)	**Variable considered Most Important for the Construct**
1. Security	Having a Security Guard
2. Location	The proximity to the office
3. Safety	Fire Protection in the Building
4. Environment	A place without noise
5. Property	Size of the Apartment
6. Rate	Monthly rental rate
7. Amenities	Having Internet
8. Management	Responsiveness
9. Services	Having an Onsite Handyman

Table 3. Construct and Variables considered most important

On a five point Likert Scale, the respondents were asked to indicate their satisfaction with all the constructs and variables in the place where they currently

live, after which, responses for the nine identified variables (see Table 3) were regressed to determine significance for Overall Satisfaction.

A Pearson test followed by an ordinary regression was performed, then a Spearman test followed by an Ordered Logistics Regression was performed, results were similar. Given the ordinal data, the author decided to use the results of the Spearman test to analyze the correlation between the variables. Table 4 shows the results of the Spearman test.

Satisfaction Variable	***Spearman***
Satisfaction with current Security Guard	0.666
Satisfaction with current Distance from the Office	0.699
Satisfaction with current Building Fire Protection	0.819
Satisfaction with current Noise Levels	0.630
Satisfaction with current Apartment Size	0.653
Satisfaction with current Monthly Rental Rate	0.130
Satisfaction with current Internet provisioning	0.504
Satisfaction with current Responsive Management	0.658
Satisfaction with current Onsite Handyman	0.347

Table 4. Spearman test results.

The Spearman test revealed a moderate to very strong monotonic relationship between all variables except for the monthly rental rate which showed a very weak correlation.

Kano (1984) distinguishes “basic factors” and “excitement factors”. A basic factor (also known as a “must be” or “pre-requisite”) is a minimum requirement; it causes dissatisfaction when such requirement is not fulfilled but it does not lead to customer satisfaction when such requirement is fulfilled or exceeded. Excitement factors (also known as “delighters”) on the other hand are factors that increase customer satisfaction when fulfilled or exceeded, but they do not cause dissatisfaction when not fulfilled.

The monthly rent is a “basic need”; tenants will not choose an apartment with a monthly rent of P30,000 if they can only afford P15,000. Using Kano’s theory: meeting the “rental rates” expectation of a tenant is important, however it does not affect the Overall Satisfaction.

After excluding the monthly rental rate, the Ordered Logistic Regression results show a Pseudo R^2 of 0.70 and a subsequent link test of the model specification confirmed a good fit (see Table 5):

Satisfaction Variable	***Coefficient***	***Significance***
Satisfaction with current Security Guard	-6.080	0.081*
Satisfaction with current Distance from the Office	2.249	0.211*
Satisfaction with current Building Fire Protection	7.146	0.037*
Satisfaction with current Noise Levels	0.187	0.867*
Satisfaction with current Apartment Size	0.587	0.556*
Satisfaction with current Internet provisioning	2.630	0.061*
Satisfaction with current Responsive Management	1.982	0.222*
Satisfaction with current Onsite Handyman	6.528	0.075*

Table 5. Ordered Logistic Regression results for the selected variables (*$p < 0.1$; $R^2 = 0.705$)

Four variables (Security Guard, Building Fire Protection, Internet Provisioning and the Satisfaction related to an Onsite Handyman) are significant when predicting Overall Satisfaction. The other four (Satisfaction related to Distance from the Office, Noise Levels, Apartment Size, and Management Responsiveness) are not considered to contribute to Overall Satisfaction (see Table 5).

The first three insignificant variables (Satisfaction related to Distance from the Office, Noise Levels, and Apartment Size) are likely "basic needs" as well. Tenants would not choose a place in Manila while working in Bangkok; they would not rent an apartment in a noisy neighborhood if working in the nightshift

demands a quiet place; and they would not choose an apartment of 15 square meters if the family consists of five people.

Perhaps more surprising is the insignificance of Management Responsiveness. One would expect that responsiveness of management would statistically contribute to the Overall Satisfaction, but the data shows that this is not the case.

While statistically significant factors should per definition be considered by Property Managers, not statistically significant factors should not be automatically ignored by Property Managers. Kalinowski and Fidler (2010) compare Statistical Significance, Effect Size, and Practical Importance and conclude that those three are separate characteristics and should each be measured in their own right.

Responsiveness of Management does not statistically contribute to Total Satisfaction but that finding might be related to the different types of supply. Apartment tenants often do interact with a Property Manager and one would expect Management Responsiveness to contribute to the Overall Satisfaction of such tenants. Condominium tenants however often rent their unit from an individual where “management services” are either less professional or lacking all together. Real estate consultancy firm Jones Lang LaSalle is quoted in a Wall Street Journal article in April 2015; their research shows that Metro Manila added 41,810 condominiums in 2014 and they expect that another 59,000 condominiums will

enter the market in 2015. They further state that 50% of these new condominiums were purchased by Overseas Filipino Workers (OFWs), and that these OFWs spent $7 billion on properties.

Many of these OFWs rent out their condominium while they still work and live abroad. Thus a considerable part of supply in the residential lease market is supplied by individuals who rent out a single condominium without being physically present. As such, condominium tenants might expect less management services than tenants in an apartment complex expect.

Thirty-four of the fifty-three survey respondents indicated that they rent a condominium; nineteen of the fifty-three indicated that they rent an apartment, which could be the reason that Management Responsiveness appears insignificant in the statistical tests. The four significant variables (Security Guard, Building Fire Protection, Internet Provisioning and the Satisfaction related to an Onsite Handyman) confirm H1a and H1b; residential lessees do consider *having Internet* the most important Amenity and *having Internet* has a significant positive direct effect on the Overall Satisfaction. The data also confirms H6a and H6b; residential lessees consider *Building Fire Protection* indeed the most important Safety measure and their satisfaction related to the *Building Fire Protection* has a significant positive effect on the Overall Satisfaction. Likewise the *Onsite Handyman* turns out to be the most important item under Services (H9a), and the

satisfaction related to the current *Onsite Handyman Satisfaction* has a significant positive direct effect on the Overall Satisfaction (H9b).

Several studies in different settings support these results. A study in Dhaka shows that *Swiftness in emergency repairs* and *Time spent for regular repairs* as two of the top 3 contributors of a list of 23 items considered important under Management and Maintenance (Mridha M., 2015); clearly similar to our Onsite Handyman variable. Studies in the United States show that student housing tenants consider availability of Internet crucial (Roche, C.R. et al., 2010; and Schenke, J., 2008). In the Dhaka study *Safety and Security in the apartment building* ranks number 10 out of 23, while one of the US studies considers it the most important factor (Mridha M., 2015; and Roche, C.R. et al., 2010).

The regression results do confirm the first part of the remaining set of Hypotheses; i.e. lessees do consider *No Noise* the most important Environment characteristic (confirming H2a), *Distance to Office* the most important item under Location (confirming H3a), *Apartment Size* the most important Property characteristic (confirming H4a), *Monthly Rent* the most important item under Rates (confirming H7a), and *Responsiveness* the most important item under Management (confirming H8a). However, when evaluating the second part of the remaining set of Hypotheses, all are rejected.

The satisfaction with the current *Security Guard* does have a significant effect on the Overall Satisfaction but the effect is negative and hence H5b is rejected. It seems odd, that respondents consider *having a Security Guard* the most important Security factor but are not satisfied with their current Security Guard. A follow-up interview with 6 respondents revealed that tenants find Security Guards important for their safety but dislike the 'rules and regulations' imposed on them.

The regression results show that the satisfaction with *Noise Levels*, *Distance to the Office*, *Apartment Size*, and *Management Responsiveness* are all not significant for the Overall Satisfaction (rejecting respectively H2b, H3b, H4b, and H8b). As discussed, the first three are likely considered a "pre-requisite" and hence they do not contribute to satisfaction (but they would contribute to dissatisfaction if they were not met). The fact that Management Responsiveness does not contribute to the Overall Satisfaction with the current place might be caused by the fact that the majority of the respondents rents a condominium which highly likely does not come with property management services.

The hypothesis that the *Monthly Rent Satisfaction* has a significant positive direct effect on the Overall Satisfaction (H7b) is rejected because Monthly Rent was excluded from the statistical tests based on the very weak correlation as determined using the Spearman's test. Like Location, Noise Level, and Apartment Size, it is expected that Monthly Rent is a "basic factor" as well.

Conclusions, Implications, and Recommendations:

In this study data is gathered from individuals who currently rent a condominium of apartment in Metro Manila. The respondents are asked which factors they would consider most important if they were to choose a new place to live. They are then asked how satisfied they are with these factors in the place they current rent. The last part of the structured survey gathers some personal information and asks the tenants to provide an Overall Satisfaction rating for the place where they currently live.

Descriptive analysis has been used to determine which factors are considered most important. These most important factors are then tested to see if they indeed contribute to the Overall Satisfaction in the place where the tenants currently live. The results show that Internet Availability, an Onsite Handyman, Building Fire Protection, and a Security Guard contribute to the Overall Satisfaction of tenants, while Monthly Rent, Location, Apartment Size and Noise Level are "pre-requisites" (if these are not met, the tenant will not select the apartment in the first place). Management responsiveness appears not significant in the statistical model, likely because of the type of units leased. If a place is owned and rented out by an individual, there is no "Management", hence the responsiveness will not be part of the Overall Satisfaction as well.

Most "pre-requisites" cannot tailored to meet the individual preferences of tenants; once a property is located in Quezon City (a location in the north of Metro Manila), it will be less attractive for individuals working in Alabang (a location in the south of Metro Manila). Similar limitations apply to Apartment Size, Monthly Rent and Neighborhood Noise. These basic factors are important considerations when real estate companies select a location to expand or when they design an apartment complex, but once the property has been acquired, modifying these factors is limited.

Where Property Managers and Entrepreneurs can differentiate is by providing the "excitement factors" considered most important for tenants. This study shows that Internet Availability, an Onsite Handyman, Building Fire Protection, and a Security Guard contribute significantly to the Overall Satisfaction of tenants. These "excitement factors" are less suitable for an individual owner renting out a single condominium, however very suitable for Property Managers or owners of apartment complexes.

It is recommended that Property Managers of apartment complexes implement the four "excitement factors". Property Managers may further want to review the performance of their Security Guard, if applicable. Our study indicates that tenants find a Security Guard important but are not satisfied with the Security Guard deployed in the building where they currently live. Last but not least Property

Managers of apartment complexes might want to focus on Management Responsiveness.

This study only covered 53 respondents, increasing the sample size might change e.g. the significance level of other variables (because of Effect Size). Future studies should also analyze the ranked data used to determine importance. Although this study does determine which factor is more important than other factors, it does not determine importance in absolute terms.

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