

**BUSINESS PLAN FOR PRE MEDO CALL MOBILE  
APPLICATION**

**THAMMATHITI PRATHOMVARL**



**A THEMATIC PAPER SUBMITTED IN PARTIAL  
FULFILLMENT OF THE REQUIREMENTS FOR  
THE DEGREE OF MASTER OF MANAGEMENT  
COLLEGE OF MANAGEMENT  
MAHIDOL UNIVERSITY  
2016**

**COPYRIGHT OF MAHIDOL UNIVERSITY**

Thematic paper  
entitled  
**BUSINESS PLAN FOR PRE MEDO CALL MOBILE  
APPLICATION**

was submitted to the College of Management, Mahidol University  
for the degree of Master of Management  
on

October 3, 2016



.....  
Kittichai Rajchamaha,  
M.Acc.  
Co-Advisor

.....  
Mr. Thammathiti Prathomvarl  
Candidate

.....  
Asst. Prof. Pornkasem Kantamara,  
Ed.D.  
Advisor

.....  
Asst. Prof. Parisa Rungruang,  
Ph.D.  
Chairperson

.....  
Clinical Professor Suwat Benjapornpitak,  
M.D.  
Acting Dean, College of Management  
Mahidol University

.....  
Asst. Prof. Phallapa Petison,  
Ph.D.  
Committee member

## ACKNOWLEDGEMENTS

I would like to thank Mr. Kittichai Rajchamaha, our thematic course professor for the many good advices he has given us during the course. This eventually helps us to be able to complete our business plan, which integrates almost all of the knowledge we gained during the past two years studying at the college of management in food business management program.

During the course of writing this Business Plan, I've encountered countless of people who helped supplied me with valuable information, experiences, and their opinions & critics for the completion of this Paper. Without these supports, this Business Plan would never have been completed. Thank you very much for those of whom our path has crossed over in the making of this Paper.

Lastly, I would like to thank my fellow classmates, 17C for being very supportive throughout the entire 2 years I've been studying here. I couldn't have done it without you guys!

Thammathiti Prathomvarl

## **BUSINESS PLAN FOR PRE MEDO CALL MOBILE APPLICATION**

THAMMATHITI PRATHOMVARL 5750409

M.M. (FOOD BUSINESS MANAGEMENT)

THEMATIC PAPER ADVISORY COMMITTEE: ASST. PROF. PORNKASEM KANTAMARA, Ed.D., ASST. PROF. PARISA RUNGRUANG, Ph.D., ASST. PROF. PHALLAPA PETISON, Ph.D., KITTICHAJ RAJCHAMAHA, M. Acc.

### **ABSTRACT**

Thailand has already entered into an aging society, and soon will become a complete aging society in the very near future. With more than 2/3 of the population has very little knowledge of nutrition, the elderly population are plaque with chronic diseases/ non-communicable diseases or known as NCD. In common terms, these diseases are known to us as high blood pressure, heart disease, high cholesterol, stroke, high blood sugar, and diabetes. These fatal chronic diseases occur from urban lifestyle of unhealthy diet and inactivity, in which they can be prevent and maintain. Tremendous public resources have been pouring into the Thai medical industry as a conventional way for detection of diseases in patients so as help relief those symptoms, instead of effectively preventing those diseases from occurring in its first instance. Despite Thailand as having one of the best medical industries in Southeast Asia, nevertheless, these preventable diseases are seen as common diseases to us all, especially in elderly citizens. The solution right down to the root cause of NCD isn't in finding a magical blue pill that can cure them all, but rather a simpler solution of changing ones' own habit, a change in our lifestyle. No matter what age ones in, or what condition ones are, there's no such thing as too late to change in order to be living an aging quality life.

Pre Medo Call Mobile Application aims at becoming a platform that connects elderly citizens with family members for support, medical personnel for general professional advices, and providing sufficient historical information for medical doctors to make insightful decision making for the prevention and maintaining of chronic diseases. Since the prevention of fatal diseases cannot be done purely by one man, but rather takes all parties' efforts hand in hand. Pre Medo Call is a platform that aims to link all related parties together into one loop, all revolving around one purpose, a sustainable prevention or maintaining of chronic diseases in the elderly parents.

Not only that the effect of this Business's positive social externality will cause a disruption within the medical industry on the way we provide conventional healthcare services, but the Business itself also provides substantial profitability having payback period of 1.10 years, net realizable value of Baht 29 million, generating an internal rate of return at a surprising rate of 320%, and valuation of Baht 65 million within 3 years of incorporation from Baht 1 million share capital.

**KEYWORDS:** Non-Communicable Diseases/ NCD/ Chronic Diseases/ Mobile Application/ Elderly

238 pages

## CONTENTS

	<b>Page</b>
<b>ACKNOWLEDGEMENTS</b>	<b>ii</b>
<b>ABSTRACT</b>	<b>iii</b>
<b>LIST OF TABLES</b>	<b>xi</b>
<b>LIST OF FIGURES</b>	<b>xiii</b>
<b>CHAPTER I MACRO-ENVIRONMENTAL ANALYSIS</b>	<b>1</b>
1.1 Summary of Macro-Environmental analysis (PESTEL)	1
1.2 Environmental Trends	2
1.2.1 Megatrends	2
1.2.2 Digital Future	2
1.2.3 Entrepreneur Rise	3
1.2.4 Global Marketplace	4
1.2.5 Urban World	5
1.2.6 Resourceful Planet	5
1.2.7 Health Reimagined	6
1.3 Economic Trends	6
1.4 Social Trends	8
1.4.1 Internet Access	8
1.4.2 Social Media	10
1.4.3 Online Purchase	14
1.4.4 Aging Population	14
1.4.5 Health	15
1.5 Political & Regulatory Changes	29
1.5.1 Government Subsidies	29
1.5.2 Corporate Income Tax	29
1.5.3 Venture Capital & Trust Funds Tax Incentives	30
1.5.4 Private Funding	30

## **CONTENTS (cont.)**

	<b>Page</b>
1.5.5 Public Funding	30
<b>CHAPTER II NATIONAL ADVANTAGES</b>	<b>31</b>
2.1 Factor Conditions	31
2.2 Demand Conditions	32
2.3 Related and Supporting Industries	33
2.4 Strategy, Structure, and Rivalry	33
2.5 Government	34
2.6 Summary of National Advantages	34
<b>CHAPTER III BUSINESS OVERVIEW AND BUSINESS MODEL</b>	<b>36</b>
3.1 Business Overview	36
3.2 Business Model	37
3.3 Legal Considerations	38
<b>CHAPTER IV INDUSTRY ANALYSIS: FIVE COMPETITIVE FORCES MODEL</b>	<b>40</b>
4.1 Threat of Substitutes	40
4.2 Threat of New Entrants	40
4.3 Rivalry Among Existing Firms	41
4.4 Bargaining Power of Suppliers	45
4.5 Bargaining Power of Buyers	46
4.6 Industry Forces Summary	46
<b>CHAPTER V COMPETITIVE ADVANTAGES: SWOT ANALYSIS</b>	<b>47</b>
5.1 Strengths	47
5.1.1 Team	47
5.2 Weaknesses	48
5.2.1 Limited Funding	48
5.3 Opportunities	48



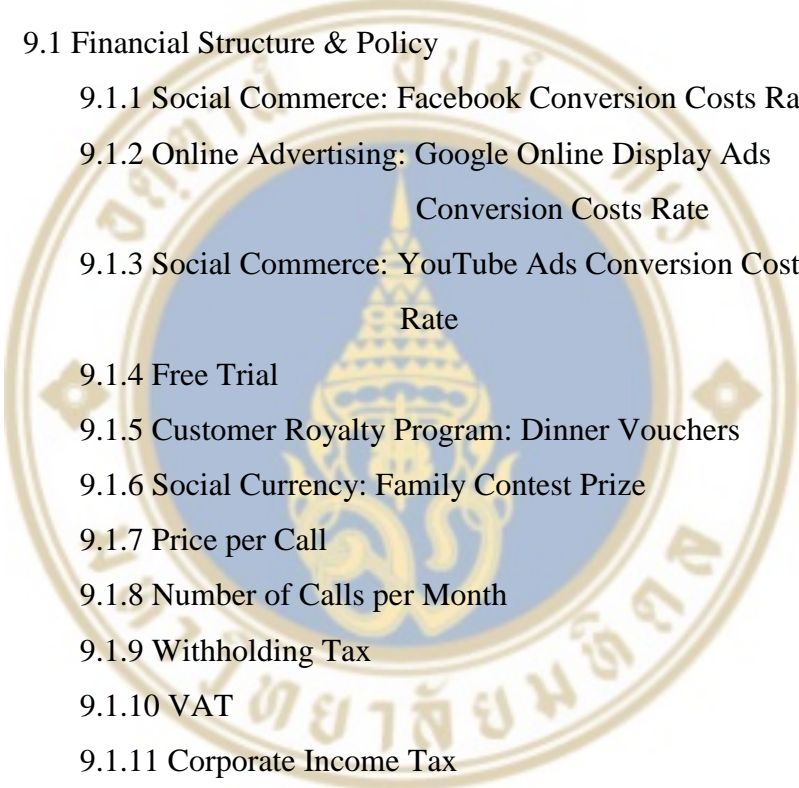
## CONTENTS (cont.)

	<b>Page</b>
5.3.1 Aging Population as Social Trend	48
5.3.2 Internet Usage as Social Trend	48
5.4 Threats	49
5.4.1 Law & Regulations	49
5.5 Competitive Advantages	49
<b>CHAPTER VI MARKETING PLAN</b>	<b>50</b>
6.1 Vision	50
6.2 Mission	50
6.3 Marketing Goal	50
6.4 Marketing Objectives	50
6.4.1 Market Share	50
6.4.2 Profit Margin	51
6.5 Market Segmentation	51
6.5.1 Demographic	51
6.5.2 Geographic	52
6.5.3 Behavioral	52
6.6 Target Market	52
6.6.1 Primary Target	52
6.6.2 Secondary Target	53
6.6.3 Target Population Estimation	53
6.7 Brand Positioning	54
6.8 Brand Essence	55
6.9 Product Strategy	55
6.9.1 Health Programs	56
6.9.2 Product Screens	61
6.9.3 Unique Selling Proposition	88

## **CONTENTS (cont.)**

	<b>Page</b>
6.10 Price Strategy	88
6.10.1 Application Structure	88
6.10.2 Revenue Channel	89
6.10.3 Final Price – Pricing Strategy	89
6.10.4 Marketing Price – Pricing Strategy	91
6.11 Channel Strategy	92
6.11.1 Customer Channels	92
6.11.2 Supplier Channels	92
6.12 Integrated Marketing Communication Strategy	93
6.12.1 E-Commerce Marketing	93
6.12.2 Word of Mouth Psychology	96
6.13 Market Research	98
6.13.1 Research Design	99
6.13.2 Elders Market Research	99
6.13.3 Son/ Daughter Market Research	104
6.13.4 Retired Medical Professionals Market Research	110
6.13.5 Medical Professionals Market Research	116
<b>CHAPTER VII OPERATIONAL PLAN</b>	<b>122</b>
7.1 Place	122
7.2 People	123
7.2.1 Software Development Expert	123
7.2.2 Nutrition Expert	123
7.2.3 Hospital Network	124
7.2.4 Permanent IT	124
7.2.5 Business Administration	124
7.3 Physical Evidence	125
7.4 Process	125





## 9.1 Financial Structure & Policy

- 9.1.1 Social Commerce: Facebook Conversion Costs Rate
- 9.1.2 Online Advertising: Google Online Display Ads Conversion Costs Rate
- 9.1.3 Social Commerce: YouTube Ads Conversion Cost Rate
- 9.1.4 Free Trial
- 9.1.5 Customer Royalty Program: Dinner Vouchers
- 9.1.6 Social Currency: Family Contest Prize
- 9.1.7 Price per Call
- 9.1.8 Number of Calls per Month
- 9.1.9 Withholding Tax
- 9.1.10 VAT
- 9.1.11 Corporate Income Tax

	Page
<b>CHAPTER VIII ORGANIZATIONAL STRUCTURE</b>	<b>130</b>
8.1 Shareholding Structure	130
8.2 Organizational Structure	131
<b>CHAPTER IX FINANCIAL PLAN</b>	<b>132</b>
9.1 Financial Structure & Policy	132
9.1.1 Social Commerce: Facebook Conversion Costs Rate	132
9.1.2 Online Advertising: Google Online Display Ads Conversion Costs Rate	134
9.1.3 Social Commerce: YouTube Ads Conversion Costs Rate	134
9.1.4 Free Trial	134
9.1.5 Customer Royalty Program: Dinner Vouchers	134
9.1.6 Social Currency: Family Contest Prize	135
9.1.7 Price per Call	136
9.1.8 Number of Calls per Month	137
9.1.9 Withholding Tax	137
9.1.10 VAT	137
9.1.11 Corporate Income Tax	137
9.1.12 Application Development Cost	137
9.1.13 INMUCAL Database Cost	137
9.1.14 Website Development Cost	137
9.1.15 Software Amortization Cost	138
9.1.16 Technician Recruitment	138
9.1.17 Office Rental	138
9.1.18 Server Rental	138
9.1.19 Media Clip Production	139
9.1.20 Event	139

## CONTENTS (cont.)

	<b>Page</b>
9.1.21 Banner	140
9.1.22 Credit Term	141
9.2 Revenue and Costs Estimation	142
9.3 Profit & Loss Projection	143
9.4 Balance Sheet Projection	143
9.5 Changes in Shareholders' Equity Projection	147
9.6 Cash-Flow Projection	150
9.7 Monthly Cash-Flow Projection	152
9.8 Weighted Average Cost of Capital Projection	158
9.9 Project Evaluation	163
9.10 Project Valuation	164
9.11 Financial Ratios Analysis	166
9.11.1 Profitability Ratios	167
9.11.2 Efficiency Ratios	168
9.11.3 Liquidity Ratios	169
9.11.4 Debt Ratios	169
9.12 Sensitivity Analysis	170
<b>CHAPTER X RISK MANAGEMENT</b>	<b>171</b>
10.1 Market Risk	171
10.2 Financial & Liquidity Risk	171
10.3 Credit Risk	171
10.4 Operational Risk	172
10.5 Strategic Risk	172
<b>BIBLIOGRAPHY</b>	<b>175</b>
<b>APPENDICES</b>	<b>182</b>
APPENDIX A: Concept Design Interview with Elderly	183

## CONTENTS (cont.)

	<b>Page</b>
APPENDIX B: Concept Design Interview with Son	185
APPENDIX C: Concept Design Interview with Medical Professional	187
APPENDIX D: Elders Qualitative Interview	188
APPENDIX E: Elders Purposive Homogeneous Survey	191
APPENDIX F: Son Qualitative Interview	198
APPENDIX G: Sons Purposive Homogeneous Survey	200
APPENDIX H: Willingness to Pay	205
APPENDIX I: Retired Medical Professionals Qualitative Interview	208
APPENDIX J: Retired Medical Professionals Purposive Homogeneous Survey	213
APPENDIX K: Medical Professional Qualitative Interview	221
APPENDIX L: Medical Professionals Purposive Homogeneous Survey	223
APPENDIX M: Jamorn Horathai	229
APPENDIX N: Dr. Somsri Charoenkiatkul	232
APPENDIX O: DEVT Application Development Quotation	236
APPENDIX P: Interview with Dr. Khunchit J.	237
APPENDIX Q: Interview with Dr. Orapin B.	238

## LIST OF TABLES

<b>Table</b>	<b>Page</b>
1.1 Corporate Income Taxes for SMEs	30
2.1 Supplies of Nurses in Southeast Asia	31
2.2 Hospital Beds in Southeast Asia	32
2.3 Health Care Industries in Southeast Asia	32
2.4 Aged Populations in Southeast Asia	33
2.5 Hospitals in Southeast Asia	34
2.6 National Advantages	35
4.1 Estimated Market Share	40
4.2 Estimated Target Market Size	41
4.3 Competitive Analysis Grid	45
4.4 Competitive Forces	46
6.1 Target Population Estimation	53
6.2 Thai RDI	56
6.3 Body Composition	57
6.4 Health Program for Active Senior Citizens	58
6.5 Health Program for Inactive Senior Citizens	59
6.6 Household Measurements to Calories	60
6.7 Weight to Household Measurements	60
6.8 Willingness to Sell	90
6.9 Penetrative Cost-Plus Pricing	90
6.10 Willingness to Buy	91
6.11 Willingness to Pay Age Group	109
6.12 Supply of Retired Nurses	115
6.13 Required Supply of Nurses	119
6.14 Nurse Portfolio	120
8.1 Shareholding Structure	130

## LIST OF TABLES (cont.)

Table	Page
9.1 FB Click to Like Conversion Costs	133
9.2 Price Estimation	136
9.3 Technician Personal	138
9.4 Server Rental	139
9.5 Banner Advertisement	140
9.6 Credit Term	141
9.7 Revenue and Costs Estimation	142
9.8 Forecasted Income Statements	143
9.9 Forecasted Balance Sheet	144
9.10 Forecasted Statements of Changes in Shareholders' Equity	147
9.11 Forecasted Statement of Cash Flow	150
9.12 Monthly Cash-flow	152
9.13 Betas from Comparable Public Companies in the Medical Industry	159
9.14 WACC Scenario	162
9.15 Net Cash-flow from Operation	163
9.16 Net Present Value of the Project	163
9.17 Internal Rate of Return of the Project	164
9.18 Payback Period of the Project	164
9.19 Free Cash-flow Schedule	165
9.20 Profitability Ratios	167
9.21 Efficiency Ratios	168
9.22 Liquidity Ratios	169
9.23 Sensitivity Analysis	170

## LIST OF FIGURES

Figure		Page
1.1	Megatrends 2015	2
1.2	FDI Growth	7
1.3	Export Growth	8
1.4	GDP Growth	8
1.5	Thailand Internet Users	9
1.6	Thais Internet Usage	9
1.7	Facebook Users: Gender	10
1.8	Facebook Users: Status	11
1.9	Facebook Users: Age Group	11
1.10	Facebook Users: Educational Level	12
1.11	Facebook Users: Occupation	12
1.12	Facebook Users: Positions	13
1.13	Facebook Users: Income Level	13
1.14	E-Commerce Values	14
1.15	Thailand's Population Pyramid	15
1.16	Knowledge of Calories per Day	16
1.17	Sources of Information on Foods in Bangkok	16
1.18	Populations with Overweight and Obesity	17
1.19	Populations with Over-Waist Line	17
1.20	Major Illnesses	18
1.21	Major Illnesses in 2014	18
1.22	High Cholesterol Patients	19
1.23	High Blood Pressure Patients	19
1.24	High Blood Pressure Prevalence Patients	20
1.25	Diabetic Patients	20
1.26	Diabetes Prevalence Patients	21



## LIST OF FIGURES (cont.)

Figure		Page
1.27	Heart Diseases (IHD)	21
1.28	Stroke Patients	22
1.29	Cancer Patients	22
1.30	Major Death Causes 2014	23
1.31	Health Care Expenditure	23
1.32	Health/Medical Expenditure per GDP	24
1.33	Health Budget/ National Budget	24
1.34	Government Health Care Expenditure	25
1.35	Household Health Care Expenditure	25
1.36	Populations per Hospital Bed	26
1.37	Hospital Personal per Population	26
1.38	Regular Exercise	27
1.39	Regular Exercise Aged Group	27
1.40	Clean Consumption below Standard	28
1.41	Most Trusted Sources of Foods Information	28
1.42	MICT Subsidies	29
3.1	Business Model	37
4.1	Nutritional Values Screenshots	41
4.2	Food Diary Screenshots	42
4.3	S Health Screenshots	43
4.4	BodyKey Screenshots	43
4.5	FoodiEat Screenshots	44
4.6	Stroke Fast Track Screenshots	44
6.1	Positioning Map	54
6.2	Brand Personality	55
6.3	Linkage	56

## LIST OF FIGURES (cont.)

Figure		Page
6.4	Window Icon Screenshot	61
6.5	Load Screen Screenshot	61
6.6	Loading Screen Screenshot	62
6.7	Home Screenshot	62
6.8	Personal Profile Screenshot	63
6.9	Health Program Screenshot	63
6.10	Fact Sheet Screenshot	64
6.11	Measuring Salt with Household Utensil Screenshot	64
6.12	Hypertension Screenshot	65
6.13	Food Diary Screenshot	65
6.14	Food Menu Screenshot	66
6.15	Rice Porridge Screenshot	66
6.16	Rice Basil Screenshot	67
6.17	Fried Egg Screenshot	67
6.18	Sodium Limit Screenshot	68
6.19	Sodium Warning Screenshot	68
6.20	Sugar Limit Screenshot	69
6.21	Sugar Warning Screenshot	69
6.22	Calories Limit Screenshot	70
6.23	Calories Warning Screenshot	70
6.24	Auto Suggest Criteria Screenshot	71
6.25	Auto Suggest Food Menu Screenshot	71
6.26	Auto Suggest Screenshot	72
6.27	Pamela Screenshot	72
6.28	Active Me Screenshot	73
6.29	Food Diary Summary Screenshot	73

## LIST OF FIGURES (cont.)

Figure		Page
6.30	Exercise Menu Screenshot	74
6.31	Exercise Database Screenshot	74
6.32	Exercise Diary Screenshot	75
6.33	Calories Report Screenshot	75
6.34	Fat Report Screenshot	76
6.35	Protein Report Screenshot	76
6.36	Carbohydrate Report Screenshot	77
6.37	Fiber Report Screenshot	77
6.38	Sodium Report Screenshot	78
6.39	Monday Report Screenshot	78
6.40	Sugar Report Screenshot	79
6.41	Body Composition Report Screenshot	79
6.42	Meals Report Screenshot	80
6.43	Balance Report Screenshot	80
6.44	Market Place Screenshot	81
6.45	Resume Database Screenshot	81
6.46	Location Screenshot	82
6.47	Scheduling Screenshot	82
6.48	Consultation Screenshot	83
6.49	Feedback Screenshot	83
6.50	Memo Record Screenshot	84
6.51	Chat 1 Screenshot	85
6.52	Chat 2 Screenshot	85
6.53	Chat 3 Screenshot	86
6.54	Emergency Distress Hospital Screenshot	86
6.55	Emergency Distress Medical Professional Screenshot	87

## LIST OF FIGURES (cont.)

Figure		Page
6.56	Emergency Distress Medical Family Screenshot	87
6.57	Emergency Distress Medical Record Screenshot	88
6.58	Pricing Strategy	91
6.59	E-commerce Marketing Channels	94
6.60	Elder Survey Gender	100
6.61	Elder Survey Age	100
6.62	Elder Survey Income Before Retirement	101
6.63	Have Someone Looking After when Aged	101
6.64	NCD Prevention Knowledge	102
6.65	Elder Survey Demand for the Application	102
6.66	Demands for Group Activities	103
6.67	Elder Survey Regular Internet User	103
6.68	Elder Survey Smartphone Owners	104
6.69	Sons/ Daughter Survey Gender	104
6.70	Sons/ Daughter Survey Age	105
6.71	Sons/ Daughter Survey Income	105
6.72	Average Time Spend with Parent per Day	106
6.73	Have Someone Looking after Aged Parent	106
6.74	Son/ Daughter's Demand for the Application	107
6.75	Familiarities with Online Purchase	107
6.76	Average Budget for Parent's Healthcare	108
6.77	Activities Together	108
6.78	Willingness to Pay Gender of Respondents	109
6.79	Willingness to Pay Age of Respondents	110
6.80	Willingness to Pay Monthly Income of Respondents	110
6.81	Retired Medical Professional Survey Gender	111

## LIST OF FIGURES (cont.)

Figure		Page
6.82	Retired Medical Professional Survey Age	111
6.83	Retired Medical Professional Survey Income before Retirement	112
6.84	Retired Medical Professional Survey Income after Retirement	112
6.85	Community Service	113
6.86	Consultation	113
6.87	Desired Consultation Hours per day	114
6.88	Desired Incomes per Month	114
6.89	Regular Internet Users	115
6.90	Smartphone Owner	115
6.91	Medical Professional Survey Age	116
6.92	Medical Professional Survey Monthly Income	117
6.93	Nurse Consultation	117
6.94	Desired Consultation Hours per Day (Weekday)	118
6.95	Desired Consultation Hours per Day (Weekend)	118
6.96	Desired Incomes per Month	119
6.97	Physical Care	120
6.98	Regular Internet Users	121
7.1	HUBBA Co-working Ekkamai	122
7.2	Function Flow Diagrams	126
9.1	Click to Like Conversion Costs	132
9.2	Click to Install Conversion Rate	133
10.1	Activities	172
10.2	Salt Meter for Hypertension	173
10.3	Sensor Socks	173
10.4	Ansoff for Revenue Channel Expansion	174



## **CHAPTER I**

### **MACRO-ENVIRONMENTAL ANALYSIS (PESTEL)**

#### **1.1 Summary of Macro-Environmental Analysis**

As more people in Asia moves into the urban city, technology such as mobile devices and its applications will help transform our lives, especially in the field of health care system, so as to enhance resource efficiency, henceforth, the government must fully foster the Tech Startup ecosystem for young entrepreneurs to incubate their ideas to reality.

Within Thailand itself, physical internet infrastructure has been laid out that connects the population together through the use of online social networking. Through the changes in our lifestyle, online purchases have drastically explodes over the years. However, through the changes in our lifestyle as well, we have become inactive and unhealthy, which causes us to age full of chronic diseases with the public sector relentlessly pouring in resources as a corrective measures instead of a sustainable preventive measures at the root cause.

Although the Thai economy remains in the dark, however, the silver lining will eventually come. On the other hand, the government plans for long-term reinventing of Thailand to become the digital economy through increase funding, tax reduction to both small enterprises as well as those of venture capitalists and trust funds. Not only that, the private sector such as banks and crowd funding has also entered the arena for symbiosis.

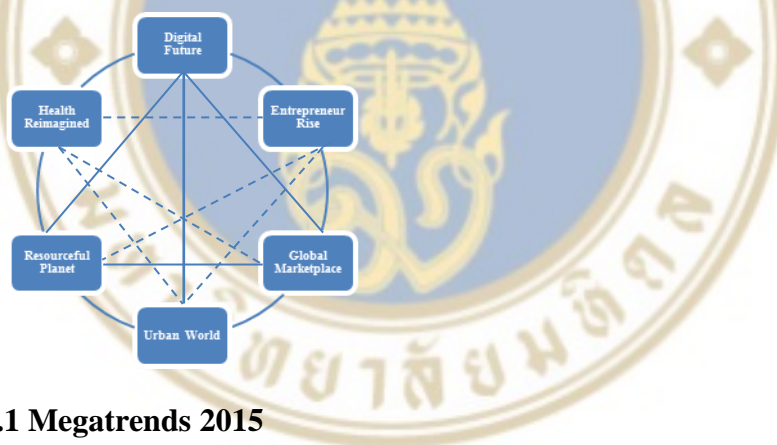


## 1.2 Environmental Trends

### 1.2.1 Megatrends

In the ever changing world gushing with torrent, the acceleration is the only constant that can be identified. In order to make sense of the world in a nutshell, large transformative forces that will reshape the society, culture, economies, business, and individuals on a global scale can be classified into what is known as the Megatrends.

According to EY Global 2015 megatrends report<sup>1</sup>, it has classified large transformation forces individually and it's interconnectedness shown in Figure 1.1 Megatrends 2015. These transformative forces will be the building block for our mobile application Tech Startup, using digital technology that will reimagine Thailand's health industry in the urbanized aging population of the future.



**Figure 1.1 Megatrends 2015**

### 1.2.2 Digital Future

Disruptive technology rewrites every industry and impact the way each individuals live their lives, poses both opportunities and challenges in every aspect.

Mobile devices & applications, big data & data analytics, cloud storage, and social media will continue to change the way we live in surprising manners. Mobile internet viewers will surpass those of webpage viewers which currently accounts for 65% of worldwide viewers, as mobile viewers increases by 28% from 17% in 2013 to 29% in 2014<sup>2</sup>. Nonetheless, in 48 countries mobile internet viewers

has already out paced those of PCs<sup>2</sup>. Mobile devices will continues to grow and becomes the main computing devices as Ericsson has estimated that the current 2 billion mobile connections will in 2019 reach 8 billion users worldwide<sup>3</sup>. As most users have access to mobile devices, consumer spending via mobile devices will accounts for half of the world's e-commerce expecting to reach USD 626 billion in 2018 from USD 204 billion in 2014<sup>4</sup>. It is expected that one third of the top 20 firms in most industries will be impacted by mobile related platforms by 2018, revolutionizing the way we do businesses<sup>5</sup>.

Mobile devices and applications will open new opportunities for companies to collect and analyze data down to individual level worldwide, thereby understanding the precise consumer needs and preferences to the very fabric of our societies, in which products and services can be precisely customized. Proactive consumers will reward the firm's brand via becoming online ambassadors within their communities. Businesses will conduct their payment based on micropayment, pay per usage model, while most will remain a "freemium" for end-consumers. The mass interaction between businesses and consumers cannot be done via one-way, but rather a co-creation type.

The future is technology. The digital future for both businesses and consumers will inevitably in every ways, intersect with the smartphone devices, either it be mobile applications, wearable, or the "Internet of Things".

This trend has become a worldwide phenomenon as we can also see the importance of this digital future in Thailand, not only by the young, but also seeping into the elders via social media, chat rooms and other applications that connects the entire family together unlike ever before.

### **1.2.3 Entrepreneur Rise**

The rise of entrepreneurship trend around the world, poses the need for an increase in supportive ecosystems for symbiosis.

The future will be spearheaded by technology, software, and machines. These will likely be innovated at a scalable size for local demand. Half of the future enterprises will be founded by the generation between ages of 25 to 44<sup>6</sup>; as 70% of the Millennial viewed themselves as entrepreneurs, according to the Universum Survey<sup>7</sup>.

Access to funding will be crucial in the future growth to foster the entrepreneur spirit. Public and private sectors must support the entire ecosystem such as funding & alternatives, mentoring, tax incentives, and red tape reduction. Surprisingly within the developing countries, funding alternative such as crowdsourcing is expected to increase to USD 96 billion in 2025 from USD 5 billion in 2012<sup>8</sup>. While global microfinance market, another funding alternative for start-up, is expected to reach USD 14 billion in 2019 from USD 5.7 billion in 2014, 19% annually growth for the next 5 years<sup>9</sup>.

Although the Thai government has continued to support Tech Startup since 2012 and become more aggressive in 2015, however, the Tech Startup ecosystem in Thailand has started to kick-off the grand opening in 2016 when the government supports venture capital and trust funds through tax exemption in dividend and capital gained for the first time since Tech Startup appears in Thailand in around 2012.

#### **1.2.4 Global Marketplace**

Economic power shifts from west to east, poses an opportunities for new trade and investment.

By 2030, GDP of rapid growth markets mostly from the east nations will account for 63% of global GDP<sup>10</sup>, from 38% in 2014<sup>11</sup>; having two thirds of global middle class, and inevitably becoming the world's knowledge hub.

As economic growth cluster more and more around Asia, it will be favorable for the region as a whole for those supporting industry and rivalry cluster to provide solutions for consumers via using resources and capabilities of this world's largest knowledge hub.

As the world of internet has no boundaries, we therefore can see software developers from China, providing ever sophisticated services at a much lower costs to Thailand companies, ignoring the physical boundaries of supply delivery. Skill labor within the software industry in Asia will no longer be the issue that hinders expectation and growth.

### **1.2.5 Urban World**

Large proportion of the population moving towards the cities, poses demand for suitable city planning and infrastructure investment.

As currently 54% of the world's population now live in big cities, according to the UN forecast, by 2050, 66% of the world's population will move into cities, thereby having access to basic utilities such as the internet, while putting more constraints on infrastructure development<sup>12</sup>.

Urbanization not only brings people together into one large dense area, it also changes our lifestyle and values we have. From extended family of the past, urbanization has created more of nuclear family whereby newer generation focuses more on economic wealth as the only means for survival in the large city, instead of focusing on taking care of their elderlies. As a consequence, more elderlies which tend to live longer; will be left behind to take care of themselves physically, but virtually remains connected.

### **1.2.6 Resourceful Planet**

The shifting in supply and the increasing in demand for alternative resources, poses an innovation for both energy and resources.

The world will become under increase constraint to allocate finite resources especially food and water to the growing world's population. As the UN forecast, by the year 2030, demand for water will surpass those of supply of water by 40%, resulting in water shortages for 50% of the world's population<sup>13</sup>. In turn, those shortages will cause 30% reduction in food supply; however, due to population growth, food demand will increase by 35%<sup>14</sup>. Food production and its waste will be increasingly monitored by regulators and consumers.

Although there are many ways to solve problem of resources constraint, however, one of the possible ways is to use what we really needs, eating right, and staying healthy as a sustainable way of limiting finite resources.



### **1.2.7 Health Reimagined**

Demographics shift and technology advancement, poses the convergence for health transformation.

Non-communicable diseases account for 75% of the world's health care spending, in which estimated that by 2030 will amounts to USD 47 trillion<sup>15</sup>. These chronic diseases relating to aging population, increasing incomes, changed diets, comfortable lifestyles in rapid growth markets, due from behavioral inappropriateness which includes tobacco use, use of alcohol, physical inactivity, and poor diet.

Currently health care accounts for 10% of the world's GDP, increasingly putting pressure on the government to reduce those costs<sup>16</sup>. The future of health care will put more emphasis on costs reduction through predictive, preventive, and real-time health care solutions that expand the access further from conventional hospital channel.

The value creation can be created through mobile health, big data, and real-time analysis as a predictive and preventive measure, transforming health care from traditional channel of going to hospitals to being health manageable by the patient themselves. Today, over 20 thousands health care mobile applications are out there creating real-time data, analysis, and interventions<sup>17</sup>. This market is expected to grow at 40% cumulative growth from 2013 to 2018<sup>18</sup>. Meanwhile, global health care analytics market is expected to grow by 23.7% cumulative growth from 2012 to 2017<sup>19</sup>. Not to mention that currently social media are generating 50 petabytes, and is expected to reach 25,000 petabytes by 2020<sup>20</sup>.

We can see the example of this megatrend abroad in the US, such as medical consultation via mobile application; however, there is no medical prevention mobile application currently in the market.

## **1.3 Economic Trends**

Thailand has reach the Millennium Project, with its pivotal achievement in its universal health coverage scheme since 2011, contributing to less than 10% of

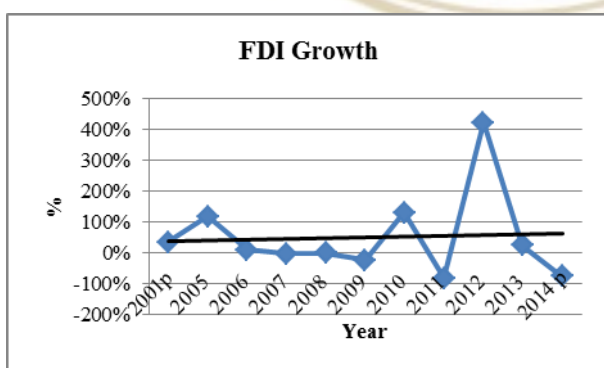
household out of the pocket expenditure<sup>21</sup>, however, increases constraint on the public subsidy.

The economy has reach upper middle income level since 2011, and is expected to reach higher income level within 2 decades according to the 2015 World Bank forecast<sup>22</sup>.

Real and service sector accounts for almost equal share of GDP, at approximately 45% to 55% respectively in 2015, relatively stable for the past decades<sup>23</sup>. Although GDP contributed from almost equal share, however, there will be time in which Thailand will need to choose between being a real sector economy or a service sector economy. In general as economy progresses, there will be higher tendency to rely more on its service sector than the real sector. Currently in 2016, the government heavily focuses on small enterprises such as Tech Startup in order to enhance the future digital Thailand.

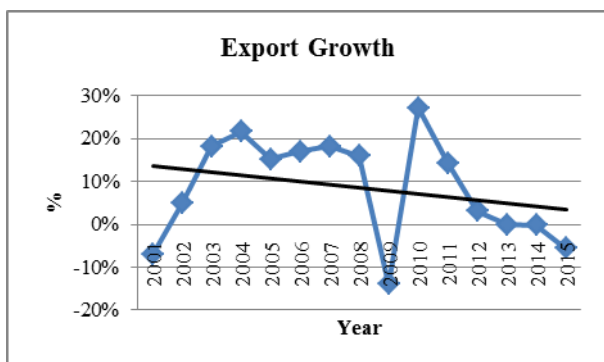
Meanwhile, 99% of businesses are operated by SME, mostly in the service industry, generating less than 40% of GDP<sup>21</sup>.

The long-term challenges of the economy include lack of skilled labor, aging population, inequality, and environmental sustainability<sup>21</sup>. While political issues continue to hammer into foreign direct investments as shown in Figure 1.2 FDI Growth<sup>24</sup>, resulting in lower competitiveness, contributing to lower export as shown in Figure 1.3 Export Growth<sup>25</sup>, impacting the country's GDP as shown in Figure 1.4 GDP Growth<sup>26</sup>. However, these shortfalls are seen as only temporary problem.

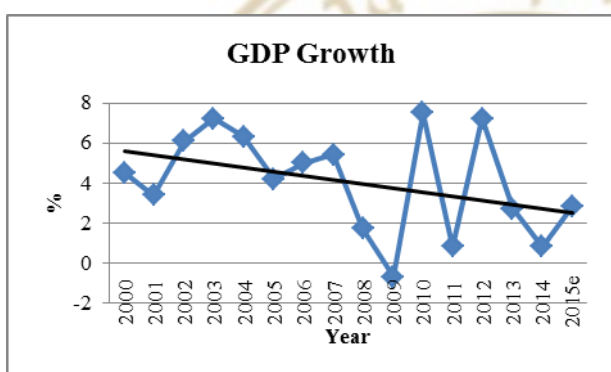


**Figure 1.2 FDI Growth** shows that Thailand currently has low foreign direct investments.





**Figure 1.3 Export Growth** shows that Thailand economy which depends largely on export has been suffering reduction in export.



**Figure 1.4 GDP Growth** has been declining for the last couple of years, signifying an economic slow-down.

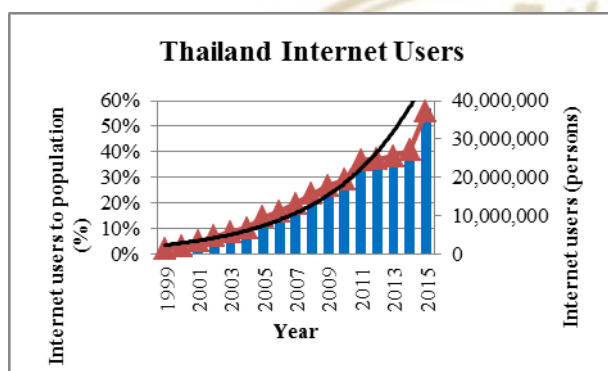
## 1.4 Social Trends

### 1.4.1 Internet Access

In order for Thailand to shift to service industry focuses on digital economy, basic infrastructure will need to be ready first.

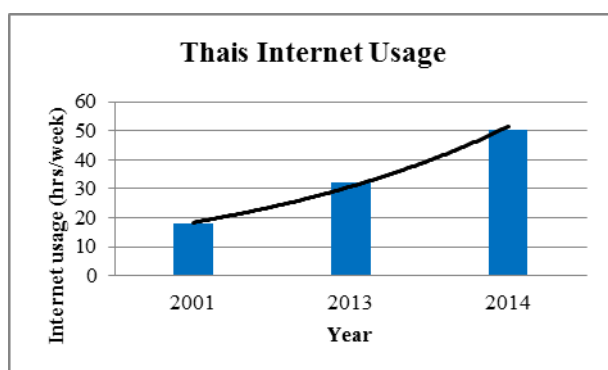
The internet communication in Thailand has shown significant advancement through the introduction of 3G and finally 4G platforms, and the beginning of an end to the 2G's platform. Huawei has estimated that within 2020, 5G's platform will be rolled out in order to support the "internet of things", connecting household electronics, wearable, and everything to the internet under one finger tip.

Out of the 68 million people in Thailand, in 2015, 38 million people are connected to the internet equivalent to 56% of the population, from 28 million people in 2014, showing a significant 36% growth rate within 1 year<sup>27</sup>, as can be seen in Figure 1.5 Thailand Internet Users. We can induce that there are more internet users in Thailand than there are people in Bangkok & Metropolitan area itself, consisting of approximately 10 million people. As most of the economy of the Thailand, concentrated itself in the Bangkok and its satellite, the physical infrastructure for the digital economy has already been in place for the next step.



**Figure 1.5 Thailand Internet Users**

Internet access and hours of internet usage shows congruency as can be seen in Figure 1.6 Thais Internet Usage, as in 2014 on average, Thai “netizen” spend 1/3 of the day serving on the internet or 50.4 hours per week, showing an increase of 57.5% from the year 2013 at 32 hours per week<sup>28</sup>.



**Figure 1.6 Thais Internet Usage**

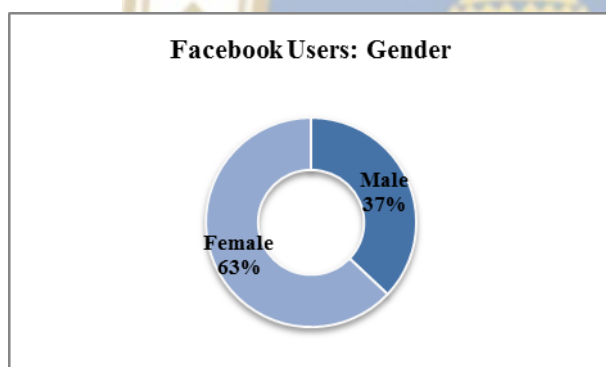
Devices use to connect to the internet has change from conventional desktop in the early days, to more of portable mobile devices. Thai netizen connection tools ranked in order are smartphone, desktop computer, notebook, mobile tablet, and smart television<sup>28</sup>. Therefore, this confirms that mobile devices and mobile applications will still dominate the network.

The most popular applications online are social media applications Facebook, Line, Google, Instagram, and Twitter<sup>28</sup>.

#### 1.4.2 Social Media

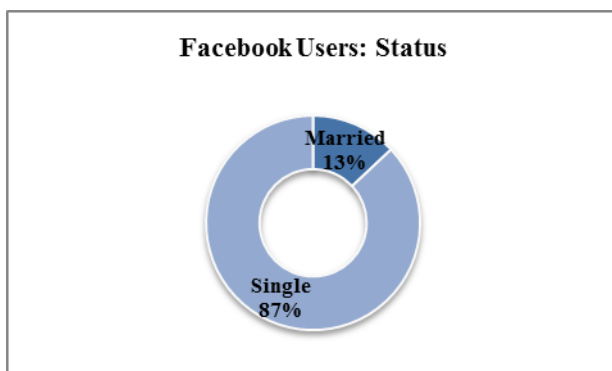
The increase accessibility of the internet together with the Thais connectedness culture has spore the usage of social media such as Facebook as the number one application for Thais during their internet connectivity.

Most users over social media are female more than male, 63% to 37% respectively<sup>29</sup> as shown in Figure 1.7 Facebook Users: Gender.



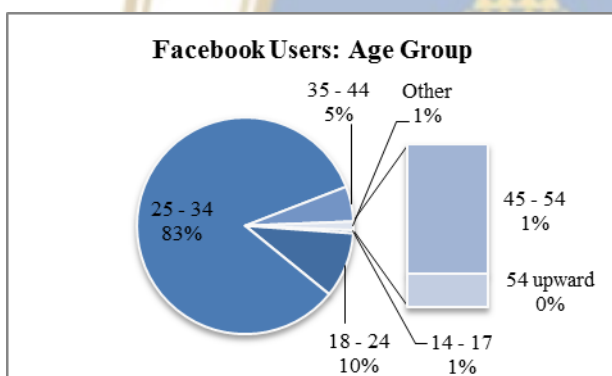
**Figure 1.7 Facebook Users: Gender**

Due to the nature of social media, people who are single tends to use more of Facebook than those who are married, 87% to 13% respectively<sup>29</sup> as shown in Figure 1.8 Facebook Users: Status. In Bangkok itself, 60% of the working population is single.



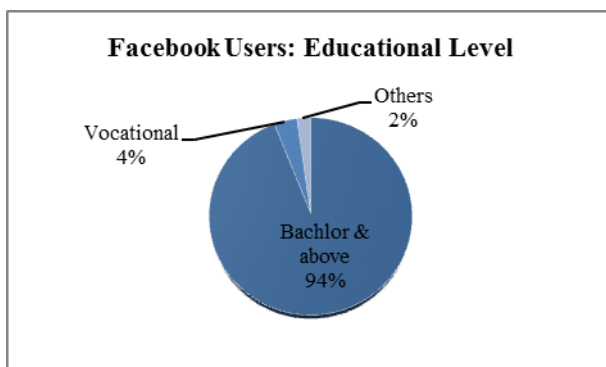
**Figure 1.8 Facebook Users: Status**

However, generation X and generation Y currently has the highest Facebook usage rate at age group between 25 to 34 contributes to 83% of users, while age group between 18 to 24 contributes to 10% of users<sup>29</sup> as shown in Figure 1.9 Facebook Users: Age Group.



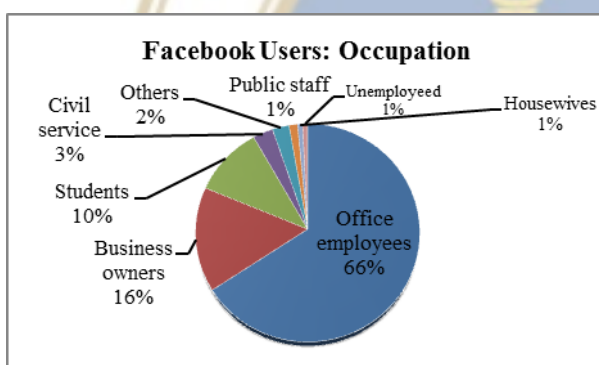
**Figure 1.9 Facebook Users: Age Group**

Most of who has educational level of bachelor degree or higher, accounted for 94% of the Facebook users<sup>29</sup> as shown in Figure 1.10 Facebook Users: Educational Level.



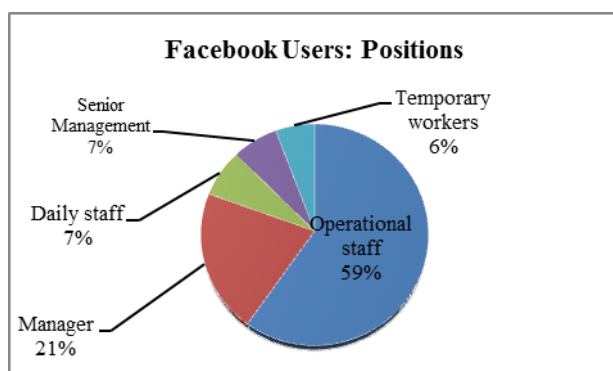
**Figure 1.10 Facebook Users: Educational Level**

Facebook users in Thailand tends to be more of office employees contributing to 66%, business owner at 16%, and 10% belongs to students<sup>29</sup> as shown in Figure 1.11 Facebook Users: Occupation.



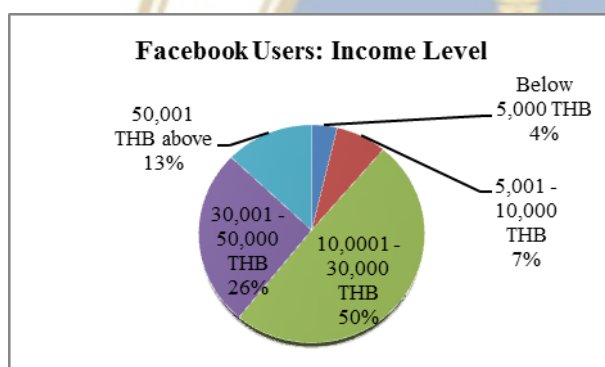
**Figure 1.11 Facebook Users: Occupation**

Out of the occupations they are from, most belongs to the operational position of up to 59%, while another 21% are managers<sup>29</sup> as shown in Figure 1.12 Facebook Users: Positions.



**Figure 1.12 Facebook Users: Positions**

Mostly with income level 10,0001 – 30,000 THB at 50%, 30,001 – 50,000 THB at 20%, and 50,001 above at 13%<sup>29</sup> as shown in Figure 1.13 Facebook Users: Income Level.



**Figure 1.13 Facebook Users: Income Level**

In summary, Facebook users tends to be more female than male, single, age group between 18 to 34 years, having college degree, working as an office employees, with position of operational staff to manager level, with income between 10,001 to above 50,001 THB per month. However, generation X, people from 30 to 40 years, also shows high level of online purchase.

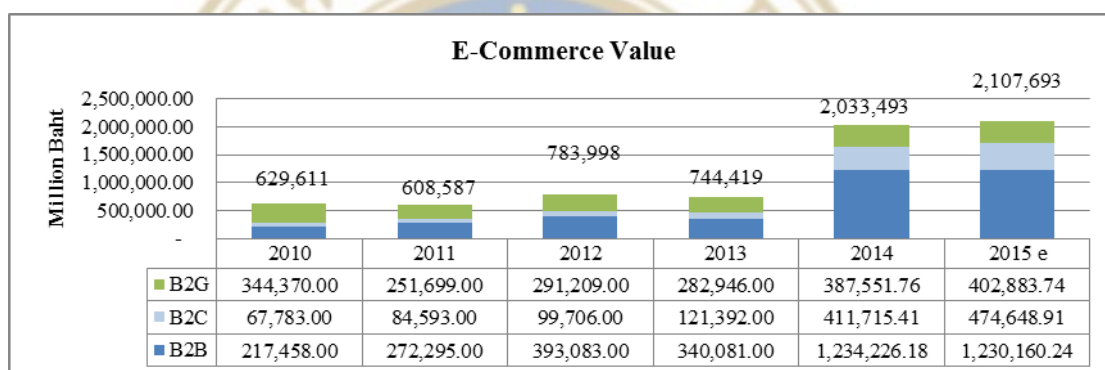
Facebook is the best advertisement channel for online content in Thailand, as the majority of Thai netizen uses this social media application as their main source of socializing and sharing on a daily basis.



### 1.4.3 Online Purchase

Thailand saw drastic explosion of e-commerce since the year 2014, reaching Baht 2 billion mark for the first time, and is expected to grow at a 4% rate<sup>30</sup> as seen in Figure 1.14 E-Commerce Value. Purchasing goods online will be the new normal in Thailand.

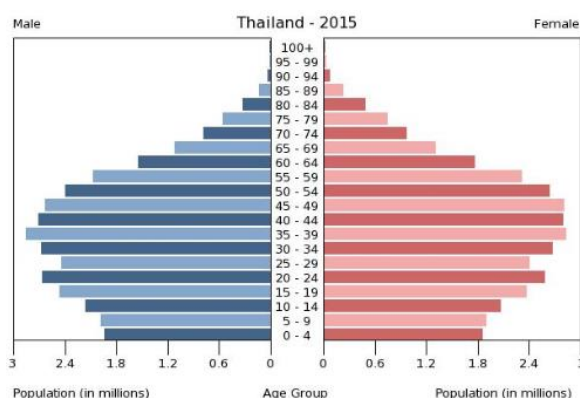
Although generation Y dominates the internet entertainment and social media, however, baby boomer and generation X are more concern with online work, finance/ investment, and purchase/ sales of goods and services. The high level of online purchases are from generation X than generation Y. Baby boomer are user of the internet, however, not likely to be direct purchaser.



**Figure 1.14 E-Commerce Values**

### 1.4.4 Aging Population

As can be seen from Figure 1.15 Thailand's population pyramid, population base remain to be at the working age, with their distribution gradually moving their way toward an aging population. Meanwhile, tip toe pyramid base shows an alarming decline in younger generation to further replace the working generation. Median age of the population is at 37 years. The structure of age group below employee period amounts to approximately 30%, working age group amounts to 50%, and aged group above employment period amounts to 20% of the total population<sup>31</sup>.



**Figure 1.15 Thailand's Population Pyramid**

Thailand shows signs of entering into an aging population for the Baby Boomer. Aging population will continuously grow larger over time, unlikely to have significant shrinkage. However, the real climax of aging population will reach in approximately 14 years from now when the Generation X reaches their retirement age topping with the already existing Baby Boomer. With the aging population coupling with the lack of Generation Z being born, there will be even more problem with labor scarcity. In order to solve the problem of scarcity, labor force efficiency will have to be maximized.

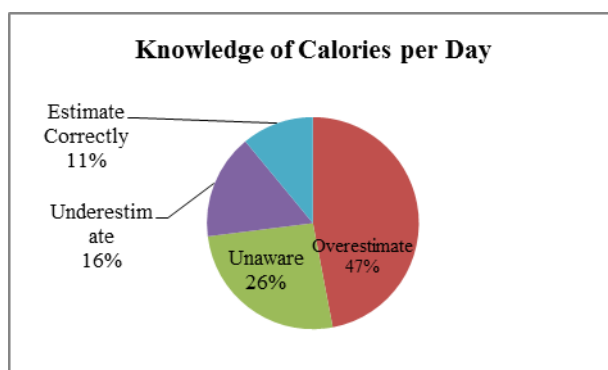
Thailand is a nuclear family society, having Baby Boomer Generation as elderly aged parents. They either have son or daughter as Generation X or Generation Y, which usually spend most of their time working, striving for success. They have higher income, with less time, and usually have to leave their aged parents behind at home.

In the Thai society, people are being forced through the cultural norms to measure success on their career or money, but also to show gratefulness to their elderly parents. These two responsibilities usually directly conflicted with each other, having the real constraint as limited time.

### 1.4.5 Health

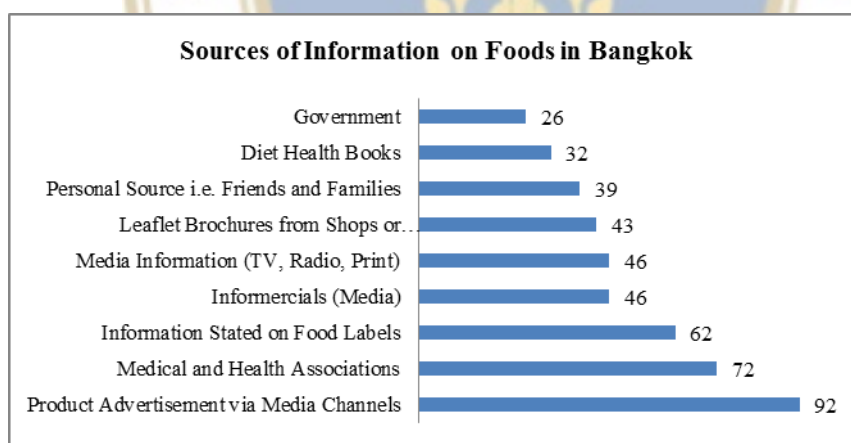
Within Bangkok Metropolitan, the Capital of Thailand, Bangkokian has little basic knowledge about nutritional values that is the main factor for living a healthy lifestyle as can be seen in Figure 1.16 Knowledge of Calories per Day, having

only 11% of the Bangkok population that are aware of basic nutritional information such as calories on a daily basis<sup>32</sup>.



**Figure 1.16 Knowledge of Calories per Day**

On the other hand, most of Bangkokian received nutritional values information from advertisement and media channels<sup>33</sup>, as shown in Figure 1.17 Sources of Information on Foods in Bangkok.

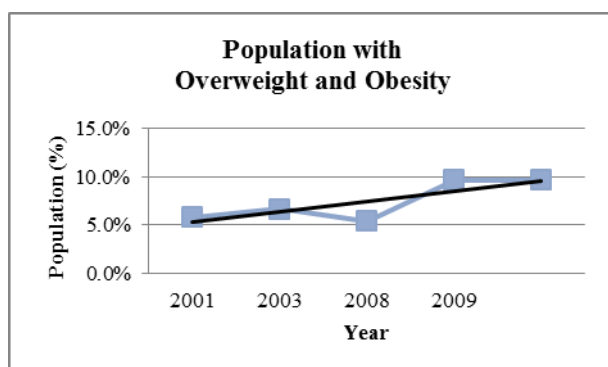


**Figure 1.17 Sources of Information on Foods in Bangkok**

With the rapid expansion of the Thai economy over the past decades, city life has become the norm of the society.

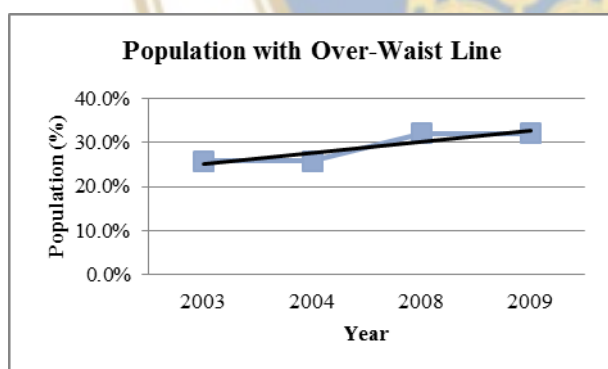
With more comfortable lifestyle and demanding work responsibilities, the society has grown over-weight engulfing approximately 9.7% of the population,

growing at 67% cumulative annual growth rate from 1995 to 2009<sup>34</sup> as suggests from Figure 1.18 Populations with Overweight and Obesity.



**Figure 1.18 Populations with Overweight and Obesity**

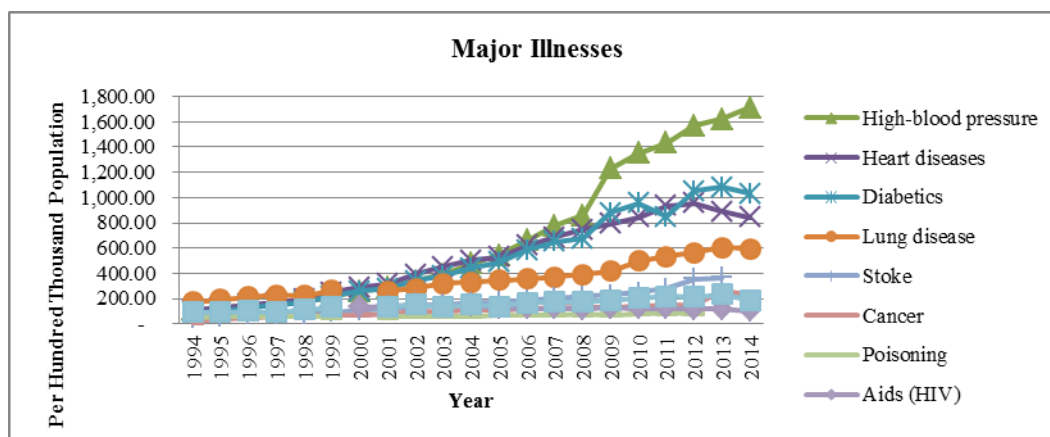
Additionally, the increase in over-waist line from 25.8% of the population in 2003 to 32.1% of the population in 2009 shows an increase trend growth of 24.4%<sup>34</sup> as show in Figure 1.19 Population with Over-Waist Line, which implies that there's an increase population at risk to chronic diseases.



**Figure 1.19 Populations with Over-Waist Line**

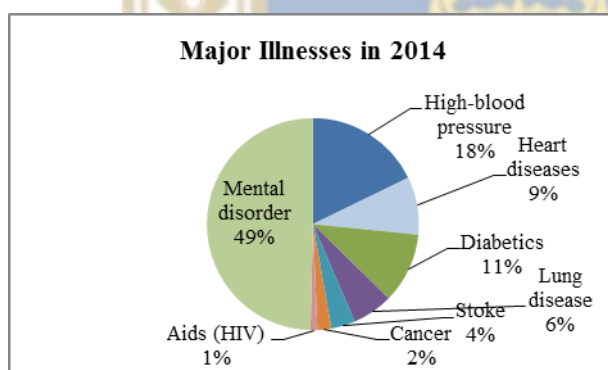
The increase risk of chronic diseases can be seen in Figure 1.20 Major Illnesses, showing chronic diseases trend among the population over the past decade, giving attention to an explosion of high-blood pressure, diabetes, heart diseases, lung diseases, and stroke<sup>35</sup>.

Chronic diseases are highly influence by tobacco smoking, alcohol consumption, nutrition consumption, and workout lifestyle.



**Figure 1.20 Major Illnesses**

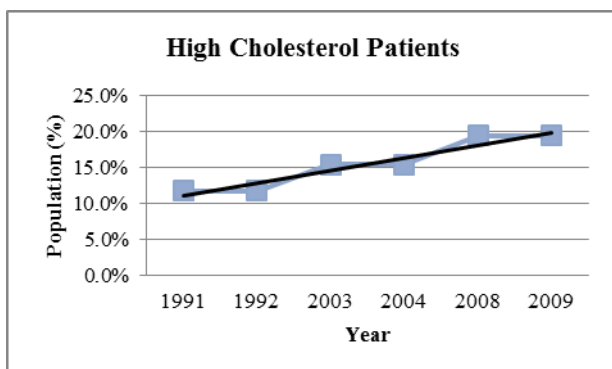
In 2014, the major non-communicable diseases for Thailand includes but not limited to high-blood pressure, heart diseases, diabetes, lung diseases, stroke, and cancer<sup>35</sup> as shown in Figure 1.21 Major Illnesses in 2014.



**Figure 1.21 Major Illnesses in 2014**

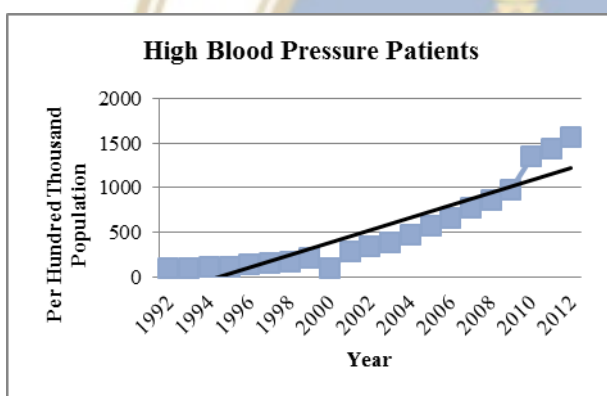
The change in lifestyle is one of the major causes of chronic diseases, increasing the trend of high cholesterol patients<sup>34</sup> as shown in Figure 1.22 High Cholesterol Patients.





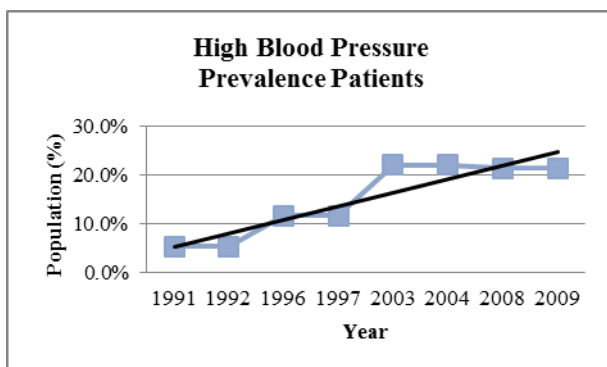
**Figure 1.22 High Cholesterol Patients**

Considering specifically at high blood pressure trend in Figure 1.23 High Blood Pressure Patients; shows continuous increase over the years. In 2012, for every 100,000 population, 1,571 people have high-blood pressure related diseases<sup>34</sup>.



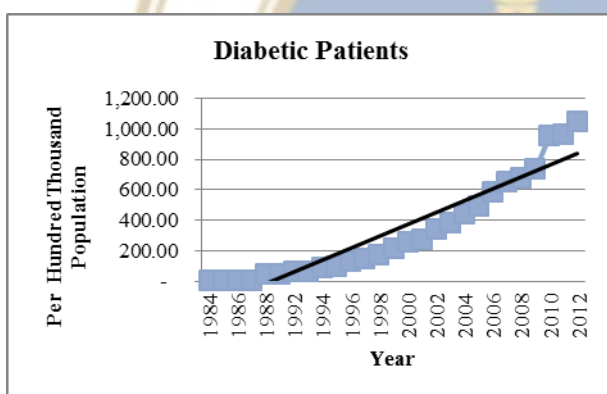
**Figure 1.23 High Blood Pressure Patients**

Not only that there's an increasing trend of actual high blood pressure patients, however, according to Figure 1.24 High Blood Pressure Prevalence Patients, the prevalence patients have also increase<sup>34</sup>.



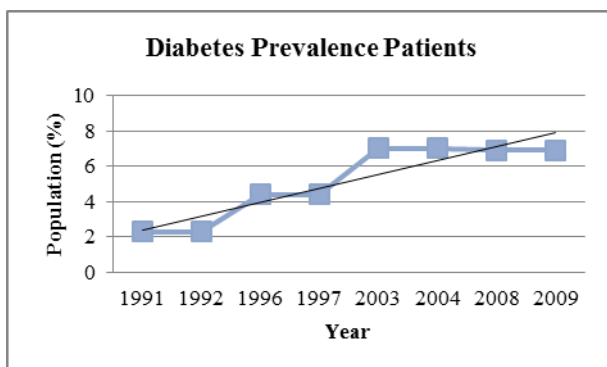
**Figure 1.24 High Blood Pressure Prevalence Patients**

A smooth increase over the years in diabetic patients can be seen according to Figure 1.25 Diabetic Patients, resulting in every hundred thousand population, there are 1,050 diabetic patients in 2012<sup>34</sup>.



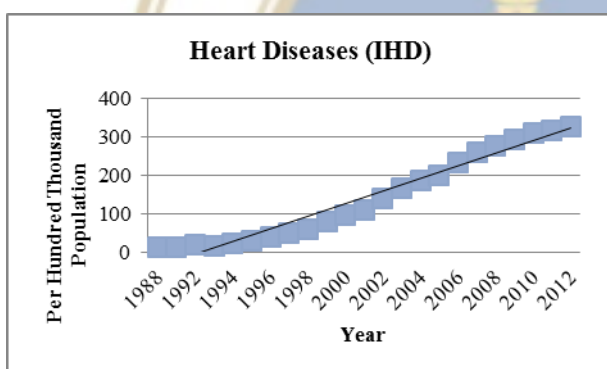
**Figure 1.25 Diabetic Patients**

Not only that there's an increasing trend of actual diabetic patients, however, according to Figure 1.26 Diabetes Prevalence Patients, the prevalence patients have also increase<sup>34</sup>.



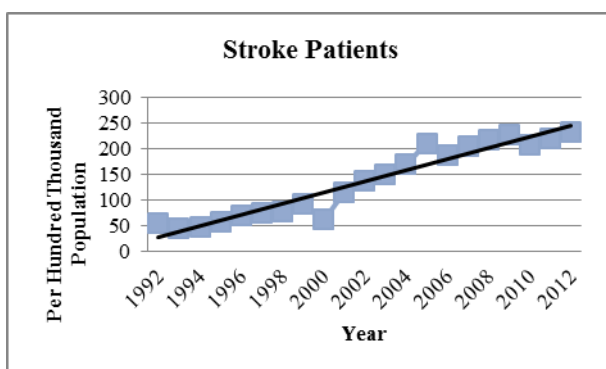
**Figure 1.26 Diabetes Prevalence Patients**

The trend of heart diseases in Thailand shows a sine curve increasing trend as show in Figure 1.27 Heart Diseases (IHD), as a result, in 2012 per every hundred thousand population, 327 people will show sign of heart disease<sup>34</sup>.



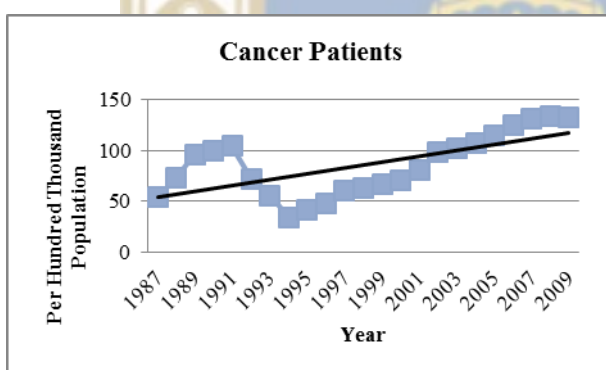
**Figure 1.27 Heart Diseases (IHD)**

Stroke patients have gradually increase over the years as shown in Figure 1.28 Stroke Patients, resulting in 234 stroke patients can be found for every hundred thousand population for the year 2012<sup>34</sup>.



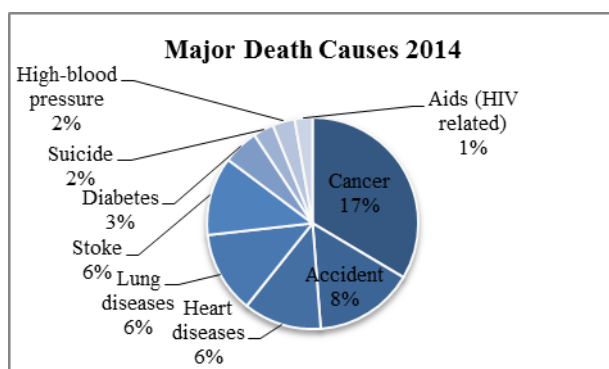
**Figure 1.28 Stroke Patients**

As shown in Figure 1.29 Cancer Patients, although cancer in the 1990s used to be one of the major diseases in Thailand, however, in 2000s, those numbers has surpassed by other chronic diseases directly related to immediate lifestyle. In the year 2009, for every one hundred thousand population, only 133 people will be diagnosed with cancer, which is lower than 1,571 patients in high blood pressure<sup>34</sup>.



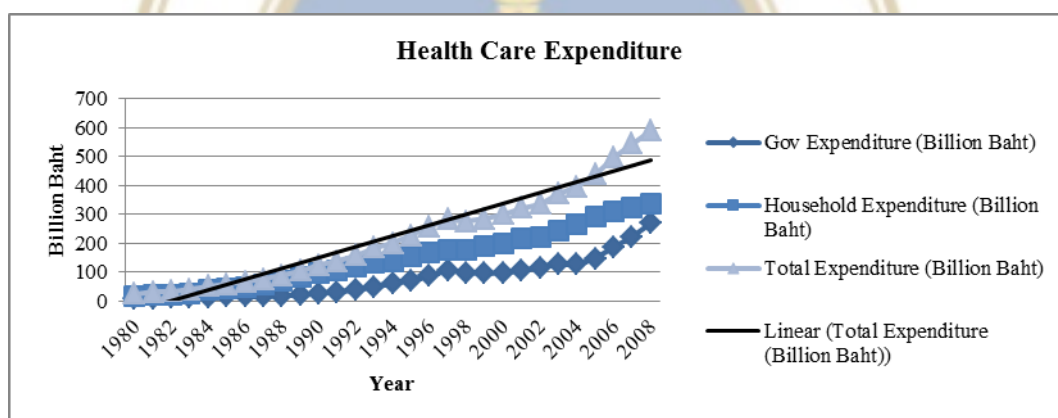
**Figure 1.29 Cancer Patients**

However, cancer remains one of the deadliest causes of death due to the limited technological advancement to treat this disease<sup>35</sup>. Other chronic diseases have better chance of survival, however, is likely to cost the government significant expenditure and budget allocation. Please see Figure 1.30 Major Death Causes 2014.



**Figure 1.30 Major Death Causes 2014**

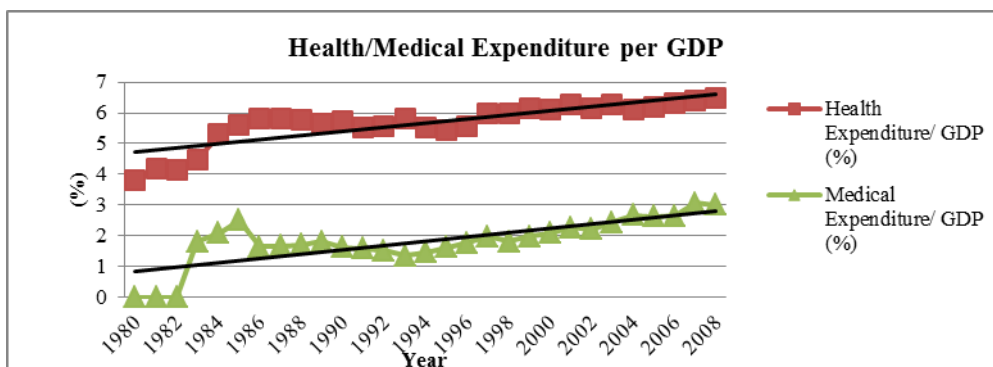
Health care expenditure for both household and government has increase over the years, having an exponential increase from the part of the government<sup>34</sup> as shown in Figure 1.31 Health Care Expenditure.



**Figure 1.31 Health Care Expenditure**

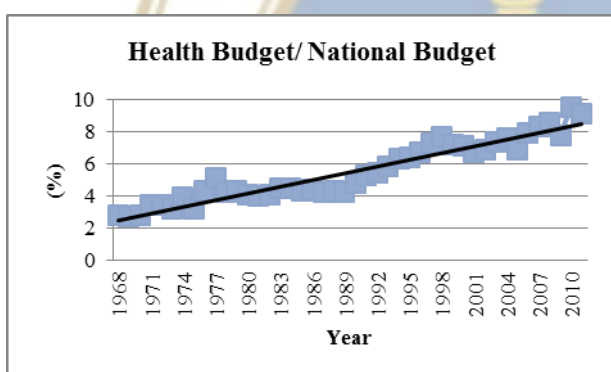
In 2008 as shown in Figure 1.32 Health/Medical Expenditure per GDP, these costs almost reached 10% of GDP<sup>34</sup>.





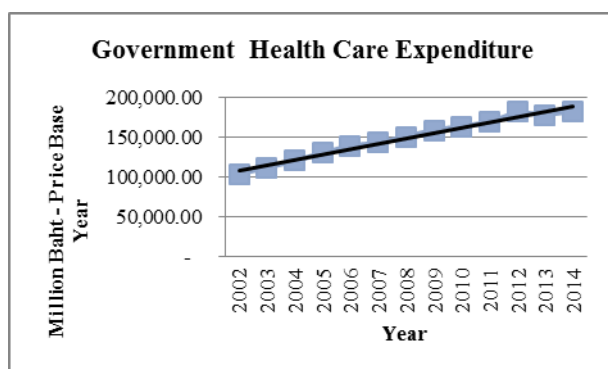
**Figure 1.32 Health/Medical Expenditure per GDP**

In 2011 as shown in Figure 1.33 Health Budget/ National Budget, almost 10% of the national budget has been allocated for health care, and continuously increasing<sup>34</sup>.



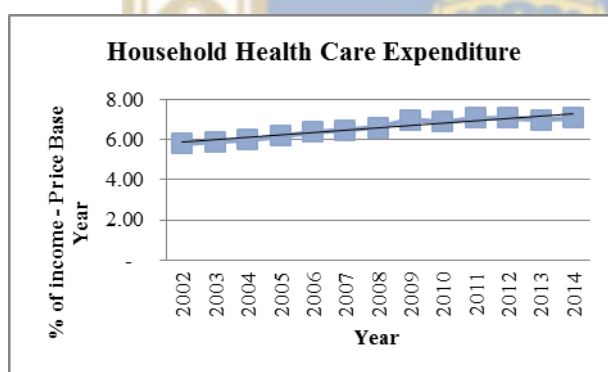
**Figure 1.33 Health Budget/ National Budget**

In 2014, the cost of government subsidized health care has reached a record high of Baht 182,903 million inflation adjusted<sup>35</sup>, as shown in Figure 1.34 Government Health Care Expenditure.



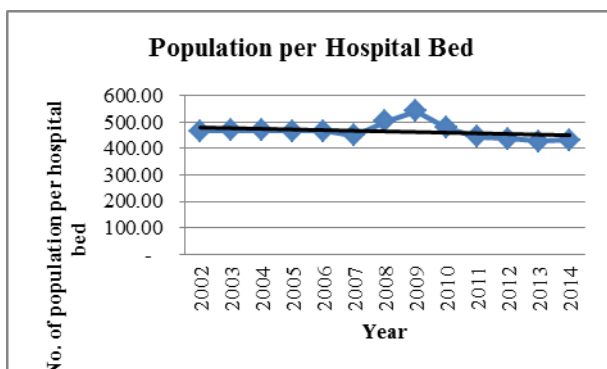
**Figure 1.34 Government Health Care Expenditure**

However, due to the universal health care system launched in 2011, the household health care expenditure, although in amount is greater than those of government subsidies, however, per income level, household health care expenditure has been kept below 10%<sup>35</sup> as shown in Figure 1.35 Household Health Care Expenditure.



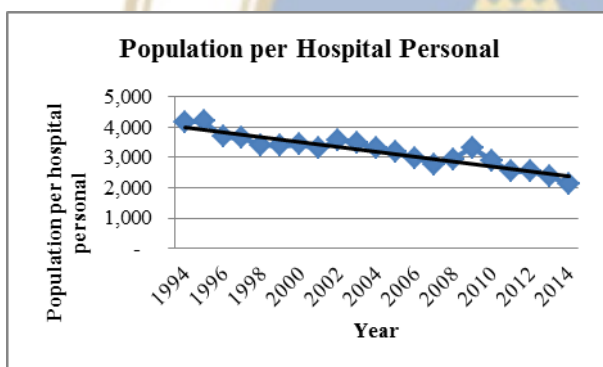
**Figure 1.35 Household Health Care Expenditure**

On the other hand, stretching resources to its capacity as shown in Figure 1.36 Populations per Hospital Bed. In the year 2014 having 432 patients per bed<sup>35</sup>.



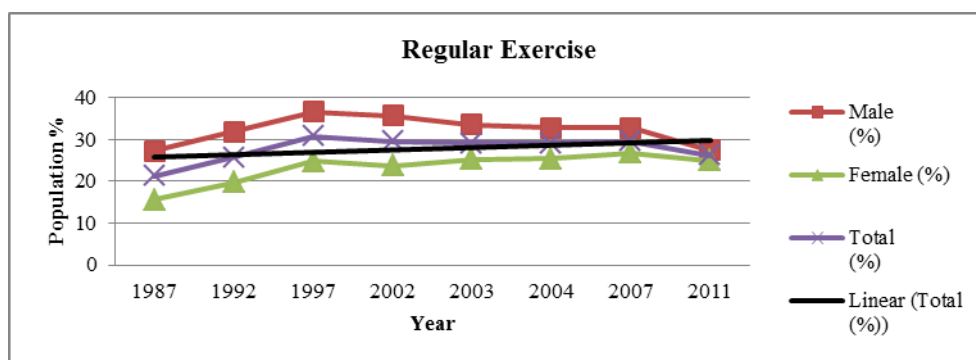
**Figure 1.36 Populations per Hospital Bed**

In 2014 there are 2,125 people for every one medical personal from 4,165 in 1994<sup>35</sup>, as can be seen from Figure 1.37 Hospital Personal per Population. The medical industry has pump out consistent skilled resources to keep the industry functioning effectively.



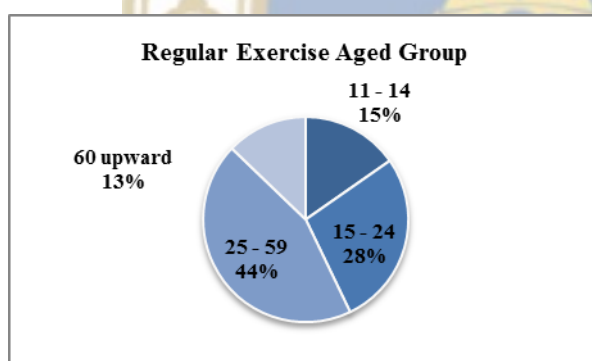
**Figure 1.37 Hospital Personal per Population**

As major diseases in Thailand are related to chronic diseases, diseases relating to one's own lifestyle that can be prevented, changes in exercise habit and eating habit will need to be improved in order to prevent these diseases from occurring. There's a silver lining in this, as according to Figure 1.38 Regular Exercise trend slightly show an increase. From 2014 onwards we can also observed that bike and marathon trend among the urban population has also increases<sup>34</sup>.



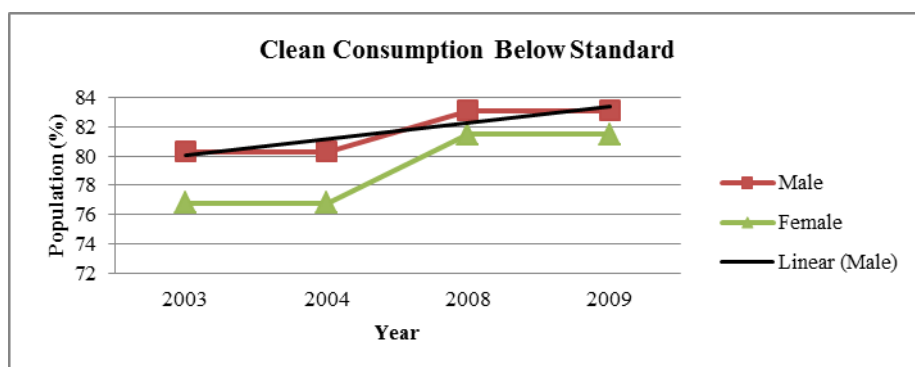
**Figure 1.38 Regular Exercise**

Observing closely in Figure 1.39 Regular Exercise Aged Group, we can see that people with age group 25-29 are the most active group due to their physical health and aspiration to stay healthy. Age group of 60 upward tends to find it difficult to exercise intensely<sup>35</sup>; however, they are the group that should be cared for the most due to their age level.



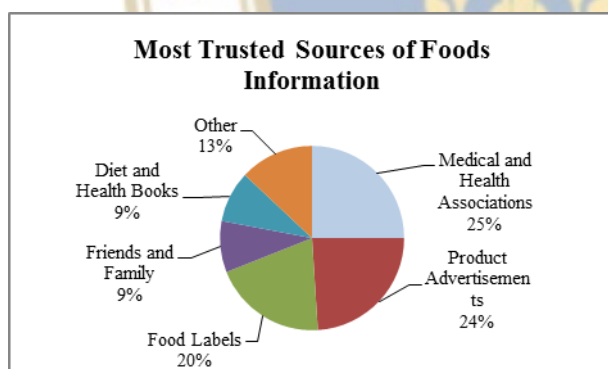
**Figure 1.39 Regular Exercise Aged Group**

Although organic food and clean healthy eating started to dominate the society, however, in practice, the admired lifestyle may deem difficult to achieve in reality as shown in Figure 1.40 Clean Consumption below Standard pointing out that more than 80% of the population are not eating correctly to the standard nutritional advice<sup>34</sup>.



**Figure 1.40 Clean Consumption below Standard**

However, the silver lining is that there's a way to winning back healthy lifestyle to the mass, through education from medical associations<sup>33</sup> as can be seen from Figure 1.41 Most Trusted Sources of Foods Information. The general public still trusts medical professionals and institutions for their diet information; therefore, the medical professionals should play a much proactive role in promoting people to live a healthy lifestyle.



**Figure 1.41 Most Trusted Sources of Foods Information**

When reaching retirement age, chronic diseases usually already appears in this population. Therefore, in order to remain to live a healthy life, rather than heading into the downward spiral, strict eating habits and appropriate exercise should be carry out.

According to the studies done by McDonald and Houghton, people tends to use smartphones as their extensive self, outsourcing essential cognitive functions such as their memories. People would prefer to record their personal health matters,

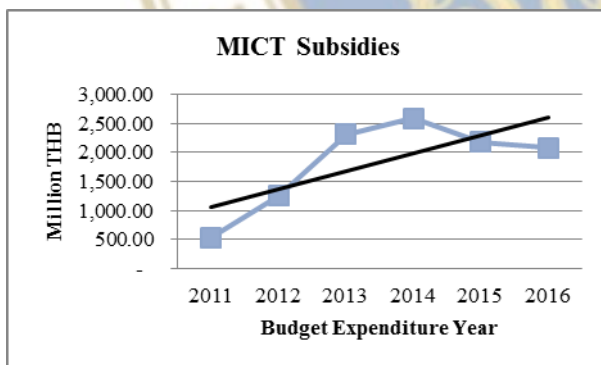


humiliating symptoms, onto their smartphone applications rather than directly consulting their doctors<sup>36</sup>. Therefore, it suggested that we are more willing to use our mobile devices as an intermediation tools for health related matters.

## 1.5 Political and Regulatory Changes

### 1.5.1 Government Subsidies

In order to increase economic growth from the base of the economy, the government has increase subsidies on SMEs, as they accounts for 90% of domestic business enterprises in Thailand. Over these couple of years, the new wave of SMEs has become known as Tech Startup. In order to remain competitive in technological industry, the government has increase support for Tech Startup up to Baht 2,000 million for 2016 by the Ministry of Information & Communication, which continuously increase since 2012 at its infant stage<sup>37</sup> as can be seen from Figure 1.42 MICT Subsidies.



**Figure 1.42 MICT Subsidies**

### 1.5.2 Corporate Income Tax

The government has also decrease tax for SMEs (Tech Startup) from Baht 1 million tax bases for tax year 2014 to Baht 3 million tax base for tax year 2015<sup>38</sup> as shown in Table 1.1 Corporate Income Tax for SMEs.

**Table 1.1 Corporate Income Taxes for SMEs**

<b>Net Profit (Baht)</b>	<b>CIT rate 2014 (%)</b>	<b>Net Profit (Baht)</b>	<b>CIT rate 2015 (%)</b>
0 - 300,000	0%	0 - 300,000	0%
300,000 - 1,000,000	15%	300,000 - 3,000,000	15%
>1,000,000	20%	>3,000,000	20%

### **1.5.3 Venture Capital & Trust Funds Tax Incentives**

On 22 March 2016 the Ministry of Finance passed a resolution for tax exemption for corporate income tax in term of dividend gained or capital gained from ventures in technology related SMEs for 10 tax periods, providing that venture capitalist and trust funds register their companies in Thailand within 31 December 2016<sup>39</sup>.

### **1.5.4 Private Funding**

Not only that the government supports Tech Startup in terms of increase funding and decrease taxes for both SMEs and their related venture capitalists, however, private banks also jump in to support this ecosystem. According to SCB, in 2016, has started their venture capital fund in the amount of Baht 1,700 million<sup>40</sup>, while K-Bank has spin-off KBTG for Fin-tech and Tech Startups, having IT budget of Baht 5,000 million<sup>41</sup>.

### **1.5.5 Public Funding**

Tech Startups can enter into Indiegogo crowd funding international platform to raised public funding. Furthermore, platform such as Dreamaker Crowdfunding and Sinwattana from Singapore has already entered the Thai Market.

Overall the business environment for Tech Startup has been positive, being at the center of attention by both government and private sectors for abundance of funding, reduction in taxes for all related parties, as well as deregulations for red tape reduction.

## CHAPTER II

### NATIONAL ADVANTAGES

#### 2.1 Factor Conditions: High

Thailand has one of the best factor conditions among the AEC countries. In terms of human resources, Thailand has the second highest abundance of nursing resources in Southeast Asia amounts to approximately 141 thousand nurses in 2015<sup>42</sup> as can be seen in Table 2.1 Supplies of Nurses in Southeast Asia.

**Table 2.1 Supplies of Nurses in Southeast Asia**

No.	Country	Nurse (per 10,000 population)	Population est. (person)	Nurse est. (person)
1	Indonesia	13.80	255,993,674	353,271
2	Thailand	20.80	67,976,405	141,391
3	Vietnam	12.40	94,348,835	116,993
4	Malaysia	32.80	30,513,848	100,085
5	Myanmar	10.00	56,320,206	56,320
6	Singapore	57.60	5,674,472	32,685
7	Cambodia	7.90	15,708,756	12,410
8	Laos	8.80	6,911,544	6,082
9	Brunei Darussalam	80.50	429,646	3,459
10	The Philippines	-	100,998,376	-

Furthermore, the physical resource of the internet has been in reached by most. Out of the 68 million people in Thailand, in 2015, 38 million people are connected to the internet equivalent to 56% of the population, from 28 million people in 2014, showing a significant 36% growth rate within 1 year<sup>27</sup>, as can be seen in Figure 1.5 Thailand Internet Users.

Not only the online infrastructure is ready to support the industry, but also the hospital infrastructure itself is also in abundance<sup>42</sup> as can be seen in Table 2.2 Hospital Beds in Southeast Asia.

**Table 2.2 Hospital Beds in Southeast Asia**

No.	Country	Hospital beds (per 10,000 population)	Population est. (person)	Hospital beds (unit)
1	Indonesia	9	255,993,674	230,394
2	Vietnam	20	94,348,835	188,698
3	Thailand	21	67,976,405	142,750
4	Malaysia	19	30,513,848	57,976
5	The Philippines	5	100,998,376	50,499
6	Myanmar	6	56,320,206	33,792
7	Singapore	20	5,674,472	11,349
8	Cambodia	7	15,708,756	10,996
9	Laos	15	6,911,544	10,367
10	Brunei Darussalam	28	429,646	1,203

## 2.2 Demand Conditions: High

In terms of demand conditions, Thailand's medical industry is the second largest industry in Southeast Asia, valuing up to USD 7.20 billion, equivalent to 6.50% of the country's GDP<sup>43</sup> as can be seen in Table 2.3 Health Care Industries in Southeast Asia.

**Table 2.3 Health Care Industries in Southeast Asia**

No.	Country	Avg. Total Health Expenditure to GDP 2011 - 2015 (%)	GDP (PPP) est. (trillion USD)	Health Care Industry est. (billion USD)
1	Indonesia	2.80	2.84	7.95
2	Thailand	6.50	1.11	7.20
3	Vietnam	7.10	0.55	3.91
4	The Philippines	4.70	0.74	3.48
5	Malaysia	4.20	0.81	3.42
6	Singapore	4.90	0.47	2.30
7	Myanmar	2.30	0.27	0.62
8	Cambodia	5.70	0.05	0.31
9	Brunei Darussalam	2.60	0.03	0.09
10	Laos	1.90	0.04	0.07

Together with the increase pressure on health care system from the aging population and the changing lifestyle, the medical industry will continue to increase. Thailand has the highest percentage of aging population in Southeast Asia, amounts to 14 million persons<sup>42</sup> as can be seen in Table 2.4 Aged Populations in Southeast Asia.

**Table 2.4 Aged Populations in Southeast Asia**

No.	Country	Aged Population (%)	Population est. (person)	Aged Population (person)
1	Indonesia	14.80	255,993,674	37,887,064
2	Thailand	21.12	67,976,405	14,356,617
3	Vietnam	13.63	94,348,835	12,859,746
4	The Philippines	10.08	100,998,376	10,180,636
5	Myanmar	12.60	56,320,206	7,096,346
6	Malaysia	13.49	30,513,848	4,116,318
7	Cambodia	9.24	15,708,756	1,451,489
8	Singapore	19.04	5,674,472	1,080,419
9	Laos	9.05	6,911,544	625,495
10	Brunei Darussalam	12.15	429,646	52,202

## 2.3 Related and Supporting Industries: High

Thailand saw drastic explosion of e-commerce since the year 2014, reaching Baht 2 billion mark for the first time, and is expected to grow at a 4% rate<sup>30</sup> as seen in Figure 1.14 E-Commerce Values. Purchasing goods online will be the new normal in Thailand.

## 2.4 Strategy, Structure, and Rivalry: High

Thailand medical industry is intensely competitive among each hospital themselves, as can be seen in Table 2.5 Hospitals in Southeast Asia, Thailand has the second most hospitals in AEC region<sup>42</sup>. The hospital industry in Thailand is undergoing merger and acquisition in order to achieve economy of scale to become



cost effective. These companies are therefore listed in the stock exchange, and driven by profit base.

**Table 2.5 Hospitals in Southeast Asia**

No.	Country	Hospitals (per 100,000 population)	Population est. (person)	Hospitals est. (unit)
1	The Philippines	1.80	100,998,376	1,818
2	Thailand	1.80	67,976,405	1,224
3	Indonesia	0.40	255,993,674	1,024
4	Myanmar	0.60	56,320,206	338
5	Malaysia	0.50	30,513,848	153
6	Laos	2.20	6,911,544	152
7	Cambodia	0.60	15,708,756	94
8	Vietnam	0.00	94,348,835	53
9	Singapore	0.50	5,674,472	28
10	Brunei Darussalam	1.40	429,646	6

## 2.5 Government: High

One of the national agenda of Thailand is the medical system for complete aging society within the coming 8 years from now. Furthermore, since 2011 the government has conducted universal health care system for all, which greatly leverage the country's medical system.

## 2.6 Summary of National Advantages: High

In summary, Thailand medical industry and the growing e-commerce industry can be considered as a national advantages comparing to other Southeast Asian countries as summarize in Table 2.6 National Advantages as below.

**Table 2.6 National Advantages**

National Advantages	Advantages Level		
	Low	Medium	High
Factor Conditions			✓
Demand Conditions			✓
Related & Supporting Industries			✓
Strategy, Structure, Rivalry			✓
Government			✓



## **CHAPTER III**

### **BUSINESS OVERVIEW AND BUSINESS MODEL**

#### **3.1 Business Overview**

The aged society has arrived, and within 5 years from now, Thailand will become a complete aged society. From the past failure of public health education, Thailand is overwhelmed with elderly citizens who are soon to be, or has already become NCD which is the major causes of today's death. These diseases are caused by unhealthy living lifestyle mainly from diet and exercise. As their son/ daughter head of to work either domestically or abroad in an ever increasing competitive world, the elderly are being left behind without proper prevention or maintenance for their lifestyle diseases, which can be fatal.

On the other hand, based on our survey in Appendix G Sons Purposive Homogeneous Survey conducted with children who has elderly parents, we found that the majority of respondent claims that they have no one to look after their parents, and wishes for one.

Thailand has high readiness in the medical industry, with abundance of nurse medical personal that can provide general preventive medical assistance. However, due to their daily physical labor, based on our interview in Appendix K Medical Professional Qualitative Interview, there is little supply for having second job as private nurses. However, based on our survey conducted in Appendix L Medical Professionals Purposive Homogeneous Survey, there's great willingness for supply of extra services if they are merely call assistance.

Based on these considerations from all parties related, we therefore propose preventive medical call mobile application as a total solution.

### 3.2 Business Model

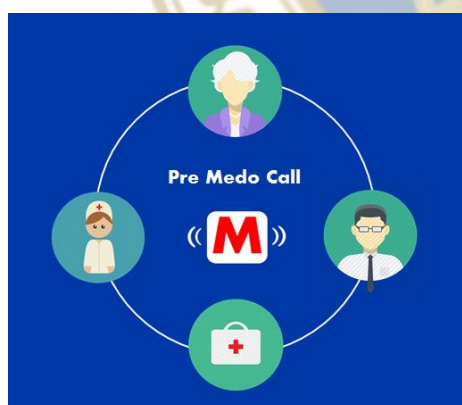
The Mobile Application aims at supporting elderly personal to prevent or maintain their non-communicable diseases (NCD) through the connection with their family for support and medical personal for proper diet and exercise health advices, which are main causes of NCD.

Based on the historical lifestyle information that the elderly provided through this application, on a scheduled basis, medical personal will conduct call conference for further advice and record.

Family and other healthcare services can have access to these information if the elderly wishes, thereby, creating a total healthcare system pivotal around the main user as shown in Figure 3.1 Business Model.

The Application is provided as a freemium, free for basic functions, and pay on usage basis for core consulting functions which are relating to analysis and call conference.

The main revenue came from consulting fee for call conferences between medical professional and elderly. The main cost of sales came from commission of medical consultant.



**Figure 3.1 Business Model**

### 3.3 Legal Considerations

As the business model involve the use of medical professionals within the new rising industry of mobile application, we therefore, consider whether there are any legal aspects that will prohibit the possibility of conducting such business model.

In consideration of the Nurse Act 2540 modified from Nurse Act 2528, the law defined nursing as the act of human treatment/care and support of patients, health recovery, disease prevention, or health promotion, including the support of other medical professionals directly or indirectly that involves the knowledge of nursing. The conduct of nursing also includes teaching, advising, consulting, in relation to health problem treatment. As from this definition, the mobile application is considered to be involved with the use of nurses for the conduct of nursing e.g. the advice for disease prevention and health promotion in elderly people.

The law does not specified that nurses must be bound to performing their nurse profession within hospital, clinic, or other medical centers. This is evidently seen whereby freelance nurses work directly at the patient's home, without being part of any institution except retaining their nurse license and is a member of the Nurse Federation.

In order to conduct nurse profession, ones must receive certification from the Nurse Federation, in which the certificate must be renewed every five years, and must be a member of the Nurse Federation. Nurse Federation Code 2553 modified from Nurse Federation Code 2543 certificate examination includes:

1. Nursing for mother and baby
2. Nursing for child and teens
3. Nursing for adult
4. Nursing for elderly
5. Nursing psychology
6. General nursing
7. Nurse law

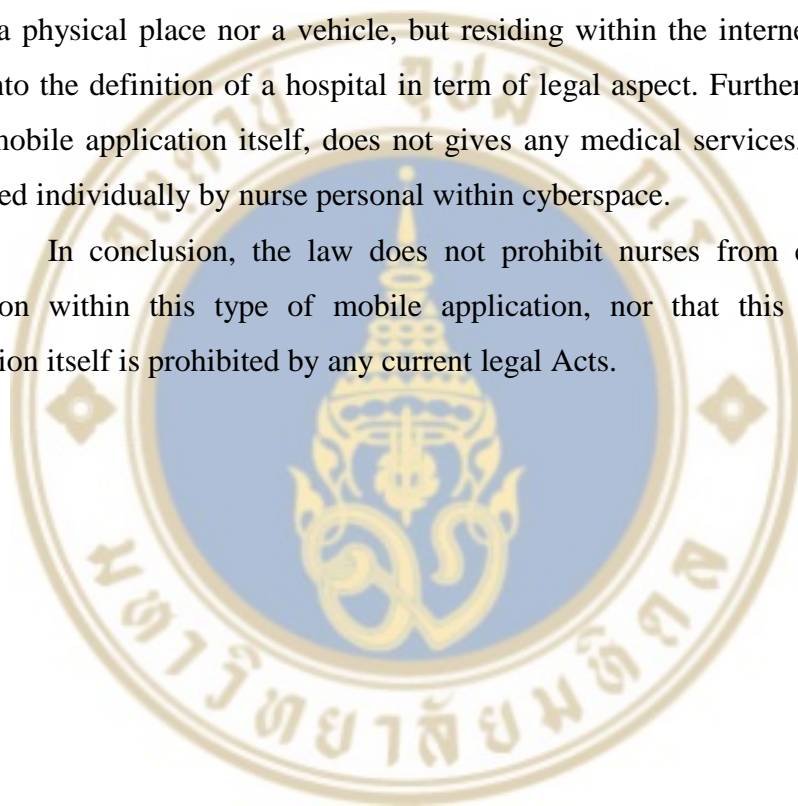
Based on these subjects as requirement for certification, nurses are equipped with the knowledge that are necessary for giving advice within the mobile application such as general nursing, psychology, and nursing for elderly.



Within the Nurse Federation Code of Conduct, there are no moral obligations that limit nurses from performing advising services within the mobile application, other than that nurses must not advise patients in order to induce sales or direct patients to certain hospital that they in turn receive benefit from this act.

In consideration whether the mobile application act as a hospital or not, which will need to comply under the Hospital Act 2541 modified from Hospital Act 2504. According to the Hospital Act, a hospital is defined as a place or vehicle that performs medical services including nursing services. As the mobile application is neither a physical place nor a vehicle, but residing within the internet, therefore, not fallen into the definition of a hospital in term of legal aspect. Furthermore, the office of the mobile application itself, does not gives any medical services, all services are conducted individually by nurse personal within cyberspace.

In conclusion, the law does not prohibit nurses from conducting their profession within this type of mobile application, nor that this type of mobile application itself is prohibited by any current legal Acts.





## CHAPTER IV

### INDUSTRY ANALYSIS: FIVE COMPETITIVE FORCES MODEL

#### 4.1 Threat of Substitutes: Low

The mobile application aims at being a preventive measure for diseases and providing general medical assistance before the need of real hospital care itself.

There is no direct threat of substitutes as a preventive measure except for the conventional hospital services, which act more as a detective & corrective measure against diseases.

#### 4.2 Threat of New Entrants: Moderate

The mobile application is not sophisticated, threat of new entrants is possible; however, the business model is very unique. Being the first mover in pioneering the new unique concept in this industry will establish a barrier to entry advantage that initially pause other rivals from entering. By gaining the majority of supplier base and customer base to start their interaction and foster their relationship within the application, this will ultimately create a nontraditional barrier to entry type. In the initial phase, this market is considered to be a niche market, therefore, unattractive for new entrants. However, after 5 years high growth is expected which we will already control the majority of the market as can be seen in Table 4.1 Estimated Market Share and Table 4.2 Estimated Target Market Size.

**Table 4.1 Estimated Market Share**

<b>Year</b>	<b>Persons</b>	<b>Share</b>
Year 1	6,266	4.81%
Year 2	27,155	20.85%
Year 3	68,931	52.94%

**Table 4.2 Estimated Target Market Size**

Year	Target Market
2016	130,214
2022	3,173,035
2027	3,648,406
2032	3,985,811

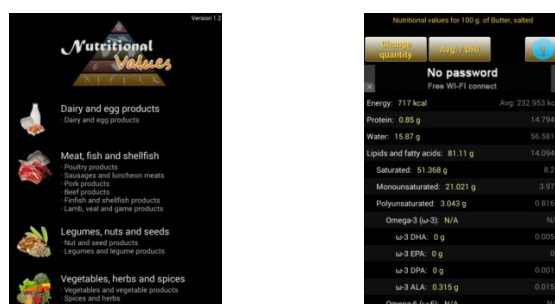
### 4.3 Rivalry among Existing Firms: Low

Currently there is no direct competitor within the industry. Most of mobile applications target sophisticated users such as those who are obsessed with food control or building muscle mass, the remainder target on general users. None of mobile applications acts as a platform in bring together patients and medical personal for interaction.

Examples of other indirect competitors are as follows:

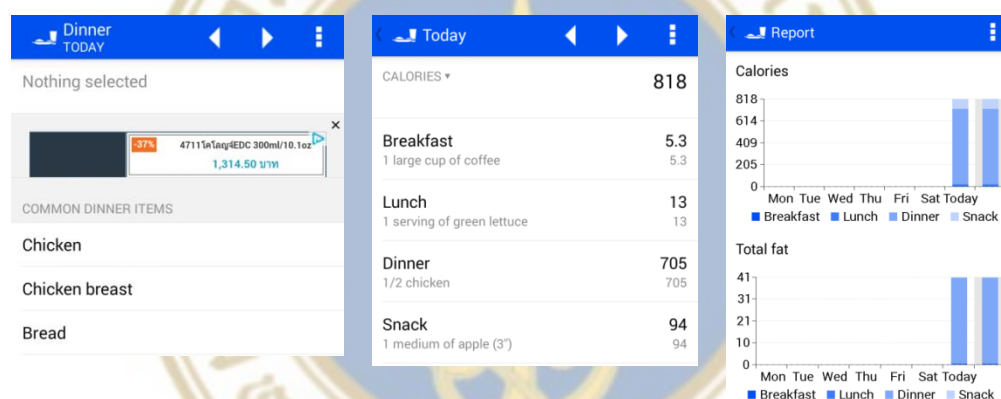
#### Nutritional Values:

Nutritional Values mobile application is a free application focuses on nutritional value. The strength of this application is in it's in depth nutritional value information of all sort of raw and cooked western food. The weakness of this application is its inability to relate those nutritional value to the human recommended daily intake and exercises to burn those calories. The application is only a simple tool to look up what nutritional value does certain food contains, providing nothing more. Please see Figure 4.1 Nutritional Values Screenshots.

**Figure 4.1 Nutritional Values Screenshots**

### Food Diary:

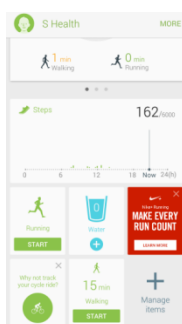
Instead of disclosing full detail of nutritional values, Food Diary focuses on only 4 factors of nutrition namely calories, fat, carbohydrate, and protein. The strength of this application is in its diary capability to keep tracks of food ones eat, and report them on a weekly basis comparison. The profile is set up to calculate individual recommended calories intake in order to accomplish a specific goal being set. The weakness of this application is its inability to make recommendation of which food to eat or not to eat, in order to control dietary for specific purposes. Furthermore, it ignores exercise as another influential factor for living healthy. The application is only a simple tool for keeping diary of food ones eats, and setting goal to accomplish. Please see Figure 4.2 Food Diary Screenshots.



**Figure 4.2 Food Diary Screenshots** illustrates that the Application has weekly reports, but lacks any recommendation as to what action must be taken next.

### S Health:

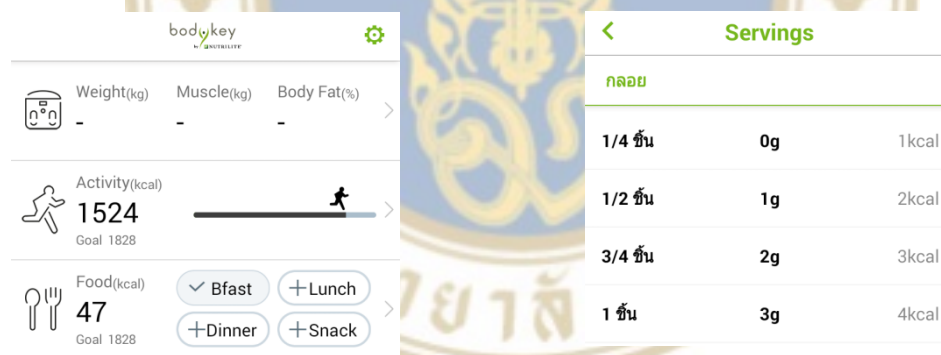
S Health is a free application for Samsung mobile phone. The strength of this application is in its simple exercise calories burner recorder. The weakness of this application is that it ignores, nutritional values as another factor for living healthy. Please see Figure 4.3 S Health Screenshots.



**Figure 4.3 S Health Screenshots**

#### BodyKey:

BodyKey mobile application comes with the purchase of its Inbody Band wearable. The product and its service target those who are active sport person who wants to build up muscle, loss body fat and weight. The application also recommends food to eat or not to eat according to specific goal being set. Please see Figure 4.4 BodyKey Screenshots.



**Figure 4.4 BodyKey Screenshots**

#### FoodiEat:

FoodiEat is a free application having both elements of exercise to balance out with food intake in order to maintain a healthy life. This application is simple to use and target at general users. However, for both exercise and food, it does not recommend what type of exercise or what type of food to eat. Furthermore, the report is too technical than ordinary people to make sense of it. Please see Figure 4.5 FoodiEat Screenshots.



**Figure 4.5 FoodiEat Screenshots**

#### Stroke Fast Track:

Stroke Fast Track is a free application by Kon Kaen University for stroke risk analysis and emergency calling for immediate medical treatment once stroke occurs. Please see Figure 4.6 Stroke Fast Track Screenshots.



**Figure 4.6 Stroke Fast Track Screenshots**

#### Hospitals/ Clinics:

Hospitals/ clinics are indirect competitors as their purpose is mainly for treatment for diseases or illnesses once occurred. They are not specialized in conducting preventive measures against diseases.



In summary, current mobile applications out in the market target general or active sport people, complicated to use, or does not contain both elements of living a healthy life. Furthermore, there are no mobile applications that create interaction between patients and medical assistance in order to help give real recommendation and influence patients to live a healthy lifestyle. All applications in the market place do not have the element of creating a lasting relationship with the users. Please see Table 4.3 Competitive Analysis Grid for comparison of competitive elements.

**Table 4.3 Competitive Analysis Grid**

Competitive Elements	Nutritional Values	Food Diary	S Health	Body Key	FoodiEat	Stroke Fast Track	Hospital
Ease of use	×	✓	×	✓	✓	✓	×
Dietary	✓	✓	×	✓	✓	×	×
Exercise	×	×	✓	✓	✓	×	×
Recom- mendation	×	×	×	✓	×	×	✓
Risk analysis	×	×	×	✓	✓	✓	✓
Medical Advisory	×	×	×	×	×	×	✓
Activities/ community	×	×	×	×	×	×	✓
Specialized shop	×	×	×	×	×	×	✓

#### 4.4 Bargaining Power of Suppliers: Low

As the application act as a platform for patients to meet with medical assistance in order to provide medical advices as a preventive measures. Suppliers are both retired nurses and nurses who can freely come into this application to offer for their service fees. Therefore, bargaining power of suppliers will be low, as there is an abundance of medical assistance. Especially those who are retired nurses in association, in which they are willing to perform the service free of charge as a type of



community service. This will drive down the service fee for regular nurses, benefiting lower income patients.

As the software must be designed to be least complicated for elderly patients, therefore, any software developer will be able to perform the task, lessening their bargaining power.

#### 4.5 Bargaining Power of Buyers: Low

As the application act as a platform for patients to meet with medical assistance in order to provide medical advices as a preventive measures. Buyers can freely come into this application to bid for medical assistance according to how much they are willing to pay for. The platform will act as a market place to match between bid and offer service fees.

#### 4.6 Industry Forces Summary: Low

In summary, in assessing the industry attractiveness via using the five forces model, it can be concluded that threat to industry profitability is low, largely due unique business model leveraging from new technological trend, with having abundance of resources originally existing in the currently niche market place. Please see Table 4.4 Competitive Forces for summary of threats level.

**Table 4.4 Competitive Forces**

Competitive Forces	Threat to Industry Profitability		
	Low	Medium	High
Threat of Substitutes	✓		
Threat of New Entrants		✓	
Rivalry among Existing Firms	✓		
Bargaining Power of Suppliers	✓		
Bargaining Power of Buyers	✓		

## **CHAPTER V**

### **COMPETITIVE ADVANTAGES: SWOT ANALYSIS**

#### **5.1 Strengths**

##### **5.1.1 Team**

Our Company's Co-founder consists of Mr. Jamorn Hothai and Mr. Thammathiti Prathomvarl, having Dr. Somsri Charoenkiatkul and Dr. Suphatra Moranon as technical consultant.

Mr. Jamorn Hothai has high knowledge and experience in technical, human, and conceptual in software development industry for over a decade. Currently he is a Co-founder of Specter Research Institute Pte. Ltd. Located in Singapore, a software developer in web & mobile application.

Mr. Thammathiti Prathovmarl has high knowledge and experience in technical, human, and conceptual in business administrative industry for over a decade. Currently he is a Co-founder of Millennium Food Products Company Limited in Thailand, a trader of LACF agricultural products.

Furthermore, Mr. Thammathiti Prathomvarl, a Co-founder, conducted Master Degree in Food Business Management at College of Management, Mahidol University (CMMU) and acquired knowledge in Nutrition.

Nevertheless, the Company has technical consultant, Dr. Somsri Charoenkiatkul, Deputy Director of Research at the Institute of Nutrition, Mahidol University (INMU)

Mr. Thammathiti Prathomvarl also has network with Arjarn Suphatra Moranon, Nursing Professor within the Faculty of Medicine Siriraj Hospital, Mahidol University (SI).

## 5.2 Weaknesses

### 5.2.1 Limited Funding

Company is a Tech Startup company with registered capital of Baht 1 Million, without debt qualification for at least 2 years, making financial capital to be extremely finite.

## 5.3 Opportunities

### 5.3.1 Aging Population as Social Trend

Thailand has already become aged society having 14 million people above the age of 50, and within 15 years will enter into super aged society.

Due to high economic growth during the baby boomer era, these senior citizens are highly likely to have the biggest pocket out of all the generations.

### 5.3.2 Internet Usage as Social Trend

With more than half of the population are now connected to the internet, seeing an exponential growth of 37% in 2015, the internet is here to stay.

Thailand has witness almost 200% cumulative growth rate of e-commerce value within the past two years since 2014.

Generation X, whom is likely to have aged parent conducted the highest business e-payment transactions out of all the generations.

Household internet usage now shifts from traditional desktop to smartphone.

## **5.4 Threats**

### **5.4.1 Law & Regulations**

Although based on the current law and regulations that govern medical professions and medical services, the current mobile application business model is considered to still abide by the law.

However, as we can see from the example of Uber and Grab Taxi services around the world, these law and regulations can be amended which may have an adverse impact on the business model.

## **5.5 Competitive Advantages**

In summary, this Application has totally new business model, differentiated itself from the existing industry. The Application can be achievable through the strength of its team member specialties, while flowing in the same direction as the torrent of the social trend.

Through the strength of the team and networking, internal weaknesses may be eliminated, while external threats mitigated.

Although limited funding denied the Company's access to mainstream marketing channels, on the other hand, unveiled the Company to focus its marketing resources on social media, word of mouth, and below the line marketing channels, together with cash-flow management, marketing and sales analysis.

Our networking with medical professionals and related medical association can support the Company in conducting appropriate public relation in order to show the more positive impact that this Application will have on the society. Furthermore, in anticipation of changes in the law, we will provide dietitian training, and test of proficiency to medical professionals before receiving them into the platform to provide services.

## **CHAPTER VI**

### **MARKETING PLAN**

#### **6.1 Vision**

Chronic diseases prevention for every household

#### **6.2 Mission**

To create a network of support for healthy living lifestyle

#### **6.3 Marketing Goal**

To be the number one mobile application in Bangkok Metropolitan for the prevention and maintaining of chronic diseases for the elders

#### **6.4 Marketing Objectives**

##### **6.4.1 Market Share**

To gain 50% of market share within the first 3 years of entry in order to gain first mover's advantage and become top of the mind awareness for the target market.

To double the size of permanent customer group on a yearly basis.

After 4<sup>th</sup> year, expand revenue channel within this niche market.



### **6.4.2 Profit Margin**

As the Company's revenue strongly relates to advertisement budget, therefore, key performance indicator should not be focuses on solely revenue factors or cost factors, but rather both. Profit margin growth 3% per year after base year.

## **6.5 Market Segmentation**

Elders who can still take care of themselves, not living in elderly home observably below 85 years can be segmented into the following.

Online marketing will be target to their son/ daughter from early generation X to late generation Y, in order to make the purchase, while their parents are the user of services.

### **6.5.1 Demographic**

The population can then be segmented into income level, or class.

The middle class tends to be white collar, educated, hard-working people. Usually these people are office employees or own small/ medium size businesses. Due to their level of education, they tends to have some knowledge of how to live a healthy live, and aspires to have one, even though their entire life has been rushing through, focusing on work rather than truly living a healthy lifestyle. By the time they retired, both their physical and mental health tends to be exhausted, and will need a few years of their retirement period to regain their health back again.

The upper class are people who own large businesses, usually have sufficient resources to look after themselves, or can hire others to support them when they needed.

The lower class are working people, blue collar, living on minimum wages or working wages. They usually works physically hard for their entire life, forego their health for money.

Thailand social classes are structured having middle class as base population of approximately 86%, lower class approximately 11%, and upper class approximately 4%<sup>44 45</sup>.



### **6.5.2 Geographic**

The elderly people can be simply segmented into urban population and rural population.

Due to the economic pressure of today's working environment, more and more people are being forced to achieve work related success, rather than spending more time with their family. Generally, urban family size tends to be smaller than those of rural family, thereby, there's more tendency for urban elderly to be left behind home alone, while all their children are out trying to make their livings.

On the other hand, rural elderly citizens may also have to face similar fate as well, as their young are leaving home for work in the urban city such as Bangkok. However, the rural community tends to be a lot more supportive and helpful than what we can observe in the urban society where the family becomes more nuclear and divided.

### **6.5.3 Behavioral**

The elderly who uses the Application should be those who are keen to devices and the internet.

## **6.6 Target Market**

### **6.6.1 Primary Target**

The target market will be retired middle class elderly citizens from the age of 60 to 85, living in urban areas such as Bangkok and satellite cities. These people are white collar baby boomer who worked hard for their entire life. Once retired, they aspire to live a long and healthy life, even if the majority of them will already show symptoms of chronic diseases. They are willing to spend their money on health and wellbeing products and services.

Equivalently, their children are middle class early Generation X and late Generation Y, who currently focuses on building their economic status. These white collar office workers are being well paid, however, having little time to spend them,

not to mention spending time with their aged parents. They are worried about their parents aging status, and willing to purchase products and services to support their aged parents.

### 6.6.2 Secondary Target

The secondary target is soon to be retired middle class elderly citizens from the age of 50 to 59 living in urban areas who are preparing for their retirement. The human body immensely deteriorates at 50 onward; therefore, this target group will already realized the urgency to preventive or maintaining their condition.

### 6.6.3 Target Population Estimation

We based our target population estimation from Thailand's population of 68 million people<sup>46</sup>, having middle class of approximately 86% of the population<sup>44</sup>, with urbanized population within Bangkok and Metropolitan all together at 16%<sup>47</sup>. The final adjustment will be screening out all the non-internet users<sup>48</sup>. Total target population for the first 6 years will be at 130,000 people, and after 6 years at 3 million, with an increase onward from Generation X exiting the work force, as shown in Table 6.1 Target Population Estimation.

**Table 6.1 Target Population Estimation**

Thailand (2015)	Target Market Estimation
Population (persons)	67,976,405
Elderly 50-85 (persons)	14,558,810
Middle Class (%)	86%
Middle Class (persons)	12,520,577
Urbanized (%)	16%
Urbanized (persons)	2,003,292
Elderly Internet Usage (%)	6.50%
Elderly Internet Usage (persons)	130,214

This market is considered to be a niche market for 6 years period, making it unattractive for large companies to join and compete within this market place in the initial phrase. However, as the Thai society entered into complete aging population having approximately 3 million customers market, having high growth. We will have first mover's advantage in the market, and expand many revenue channels thereafter.

## 6.7 Brand Positioning

Most of the current applications have the element of non-human interactions; however, in order to be effective in preventive measures, both non-human and human interaction will be needed as shown in Figure 6.1 Positioning Map.



**Figure 6.1 Positioning Map**

Currently, there are no mobile applications that focus in relation to nutritional value and exercise as a preventive or maintenance measures against chronic diseases in elderly citizens. Moreover, none of the health mobile application has created a platform for medical personal to interact freely with their patients.

## 6.8 Brand Essence

Brand essence is the emotion heart of a brand that is a defensible and sustainable differentiation from other brand.

Brand personality of the Application will be as the following Figure 6.2 Brand Personality.



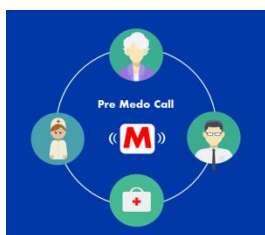
**Figure 6.2 Brand Personality**

Marketing strategies can be separated into 4 components:

- Product Strategy
- Price Strategy
- Channel Strategy
- Integrated Marketing Communications IMC Strategy

## 6.9 Product Strategy

The Application aims at taking care of the elders' lifestyle as preventive/ maintaining measures against chronic diseases (NCD) through connecting with medical professionals, son/ daughter, and medical center to give a total support as shown in Figure 6.3 Linkage.



**Figure 6.3 Linkage**

The following scenario screenshots are created for the purpose of demonstrating the functionality of the Application only. The conceptual designed has been qualitatively interviewed with all related parties as shown in Concept Design Interview with Elderly, Son, and Medical Professional in Appendix A, B & C.

### 6.9.1 Health Programs

Initially we have based our macro-nutrients from Thai RDI as shown in Table 6.2 Thai RDI<sup>49</sup>.

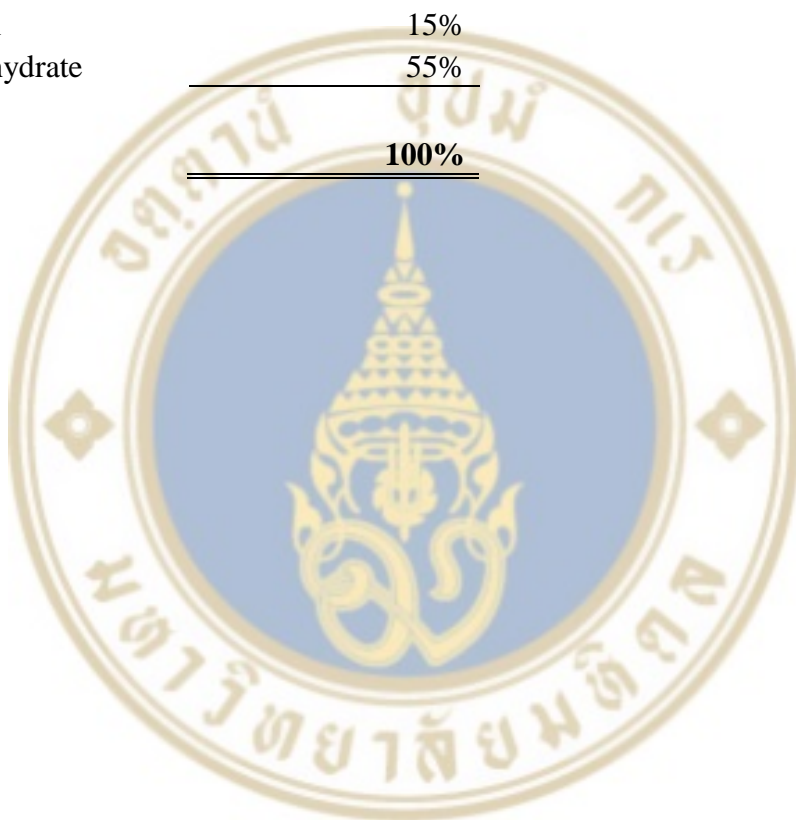
**Table 6.2 Thai RDI**

Macro-nutrients	Base	Thai RDI (Weight)	Calories per gram	Thai RDI (Kcal)
Calories (Kj)	100%	2,000		2,000
Fat (g)	30%	67	9	600
Saturated Fat (g)		20		
Cholesterol (mg)		300		
Protein (g)	10%	50	4	200
Carbohydrate (g)	60%	300	4	1,200
Dietary Fiber (g)		25		
Sodium (mg)		2,400		
Sugar (g)		45	3	150
Sugar proportion				7%
Saturated Fat pro		30%		

According to our consultation with Dr. Somsri C., our nutrition consultant, we have changed the body composition as the elderly tends to breakdown protein harder; therefore, we have increase the protein composition to 15% while reducing carbohydrate to 55% as shown in Table 6.3 Body Composition.

**Table 6.3 Body Composition**

<u>Macro-nutrients</u>	<u>Body Composition</u>
Fat	30%
Protein	15%
Carbohydrate	55%
<b>Total</b>	<b>100%</b>





Our nutrition table separated elderly into health program for active senior citizens ages from 50 to 70 as below in Table 6.4 Health Program for Active Senior Citizens, in accordance with our nutrition consultant.

**Table 6.4 Health Program for Active Senior Citizens**

Macro-nutrients	Base	Thai RDI	Men	Women	Men	Women	Men	Women	Men	Women
			(Normal)		(Reduced Fat)		(Reduced Salt)		(Reduced Sugar)	
Calories (Kj)	100%	2,000	1,800	1,600	1,800	1,600	1,800	1,600	1,800	1,600
Fat (g)	30%	67	60	53	60	53	60	53	60	53
Saturated Fat (g)		20	18	16	14	12	18	16	18	16
Cholesterol (mg)		300	300	300	300	300	300	300	300	300
Protein (g)	10%	50	68	60	68	60	68	60	68	60
Carbohydrate (g)	60%	300	248	220	248	220	248	220	248	220
Dietary Fiber (g)		25	28	28	28	28	28	28	28	28
Sodium (mg)		2,400	2,000	2,000	1,500	1,500	1,500	1,500	1,500	1,500
Sugar (g)		45	45	30	45	30	45	30	23	20
Sugar proportion			3%	2%	3%	2%	3%	2%	1%	1%
Saturated Fat pro		30%	30%	30%	23%	23%	30%	30%	30%	30%

Our nutrition table separated elderly into health program for active senior citizens ages from 70 upward as below in Table 6.5 Health Program for Inactive Senior Citizens, in accordance with our nutrition consultant.

**Table 6.5 Health Program for Inactive Senior Citizens**

Macro-nutrients	Base	Thai RDI	Men	Women	Men	Women	Men	Women	Men	Women
			(Normal)		(Reduced Fat)		(Reduced Salt)		(Reduced Sugar)	
Calories (Kj)	100%	2,000	1,400	1,400	1,400	1,400	1,400	1,400	1,400	1,400
Fat (g)	30%	67	47	47	47	47	47	47	47	47
Saturated Fat (g)		20	14	14	11	11	14	14	14	14
Cholesterol (mg)		300	300	300	300	300	300	300	300	300
Protein (g)	10%	50	53	53	53	53	53	53	53	53
Carbohydrate (g)	60%	300	193	193	193	193	193	193	193	193
Dietary Fiber (g)		25	28	28	28	28	28	28	28	28
Sodium (mg)		2,400	2,000	2,000	1,500	1,500	1,500	1,500	1,500	1,500
Sugar (g)		45	45	30	45	30	45	30	18	18
Sugar proportion			3%	2%	3%	2%	3%	2%	1%	1%
Saturated Fat pro		30%	30%	30%	23%	23%	30%	30%	30%	30%

The application will process elderly's diet and provides recommendation in ordinary language for ordinary people to understand and implement. Therefore, we have converted nutritional language into dietitian language as in Table 6.6 Household Measurements to Calories and Table 6.7 Weight to Household Measurements.

**Table 6.6 Household Measurements to Calories**

<b>Dietitian</b>	<b>Quantity</b>	<b>Household Measurement</b>	<b>Calories (Kj)</b>
Fat	1	Teaspoon	45
Protein	2	Table Spoon	70
Carbohydrate	1	Rice Cooker Spoon	70
Fruits	1	Small Plate	70
Vegetable	1	Cooking Spoon	25
Sugar	1	Teaspoon	20

**Table 6.7 Weight to Household Measurements**

<b>Dietitian</b>	<b>Quantity</b>	<b>UOM</b>	<b>Quantity</b>	<b>Household Measurement</b>	<b>H/g</b>
Fat	5	g	1	Teaspoon	5
Protein	17.5	g	2	Table Spoon	8.75
Carbohydrate	17.5	g	1	Rice Cooker Spoon	17.5
Dietary Fiber	6.25	g	1	Cooking Spoon	6.25
Sodium	2350	mg	1	Teaspoon	2350
Sugar	30	g	8	Teaspoon	3.75

### 6.9.2 Product Screens

The red color icon is vivid and distinctive enough for an elderly to see as shown in Figure 6.4 Window Icon Screenshot.



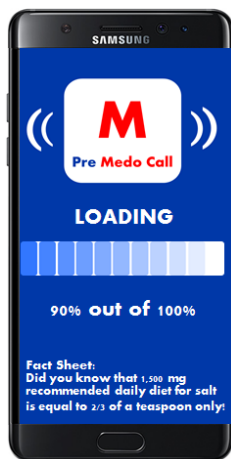
**Figure 6.4 Window Icon Screenshot**

As elderly are highly likely to be yellow color blind, we have selected royal blue color as the background as shown in Figure 6.5 Load Screen Screenshot, having 0% yellow.



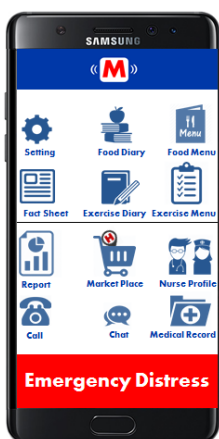
**Figure 6.5 Load Screen Screenshot**

The following shows application loading screen in Figure 6.6 Loading Screen Screenshot. The factsheet in the loading screen was recommended from an interview in Appendix B Concept Design Interview with Son.



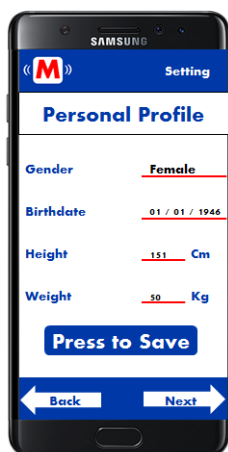
**Figure 6.6 Loading Screen Screenshot**

The Application is a freemium, with payment by usage for extra functions as shown in Figure 6.7 Home Screenshot. Food and exercise diary and suggestion functions are free of charge in order to create traffic. However, health analysis in Report, conducting conference call & chat, and keeping medical record for future use will be charged. All these functions are available only if the patient continues to use conference call with medical professional. However, in case of discontinuing the service, all historical data will still remain. We will talk about each function later on.



**Figure 6.7 Home Screenshot**

As shown in Figure 6.8 Personal Profile Screenshot will be used in the nutritional diet customization for each user.



The screenshot shows a mobile application interface for a 'Personal Profile'. At the top, there is a blue header with a red 'M' logo and the word 'Setting'. Below this, the title 'Personal Profile' is displayed. The form contains four fields: 'Gender' with the value 'Female', 'Birthdate' with the value '01 / 01 / 1946', 'Height' with the value '151 Cm', and 'Weight' with the value '50 Kg'. A blue button labeled 'Press to Save' is positioned below the fields. At the bottom, there are two blue arrows labeled 'Back' and 'Next'.

**Figure 6.8 Personal Profile Screenshot**

Not only the general nutritional value aspect will be configured, users can also specified their health concern such as reduce salt for hypertension and dialysis, reduce fat for heart disease and stroke, and reduce sugar for diabetes and obesity concern. The health program has been recommended in our interview in Appendix I Retired Medical Professional Qualitative Interview.

Notice that the wording are kept as simple as possible, instead of using medical terms as shown in Figure 6.9 Health Program Screenshot.



The screenshot shows a mobile application interface for a 'Health Program'. At the top, there is a blue header with a red 'M' logo and the word 'Setting'. Below this, the title 'Health Program' is displayed. The form contains three checkboxes: 'Reduce Salt (Hypertension/ Dialysis)' which is checked with a red X, 'Reduce Fat (Heart Disease/ Stroke)' which is unchecked, and 'Reduce Sugar (Diabetes/ Obesity)' which is unchecked. A blue button labeled 'Press to Save' is positioned below the checkboxes. At the bottom, there are two blue arrows labeled 'Back' and 'Next'.

**Figure 6.9 Health Program Screenshot**

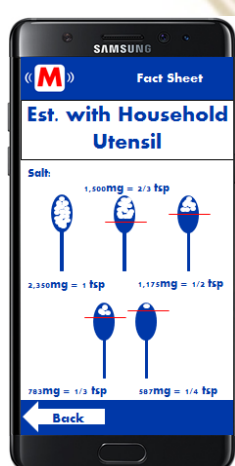


The Application has Fact Sheet as a way to educate the users of how to use the application, and related nutritional facts as shown in Figure 6.10 Fact Sheet Screenshot. This function was requested from our interview in Appendix A Concept Design Interview with Elderly.



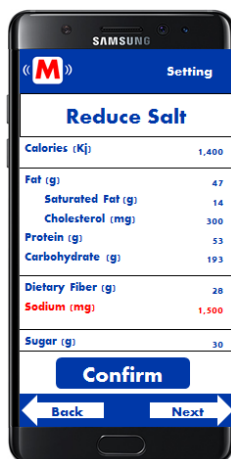
**Figure 6.10 Fact Sheet Screenshot**

This Fact Sheet will help the user understand how to apply the recommendation in real life, such as education on dietitian of measuring salt as shown in Figure 6.11 Measuring Salt with Household Utensil Screenshot.



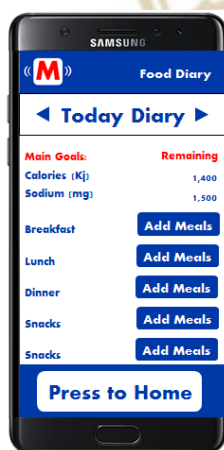
**Figure 6.11 Measuring Salt with Household Utensil Screenshot**

As the user select for hypertension, the general diet program will then customize for salt reduction as shown in Figure 6.12 Hypertension Screenshot.



**Figure 6.12 Hypertension Screenshot**

On a daily basis, the user will need to input daily diet into the Application as show in Figure 6.13 Food Diary Screenshot. The Diary will remind the user that currently main objective for diet risk reduction are calories and sodium intake.



**Figure 6.13 Food Diary Screenshot**

The user can search for various types of food as well as raw materials if they were to cook for their own meal as shown in Figure 6.14 Food Menu Screenshot.



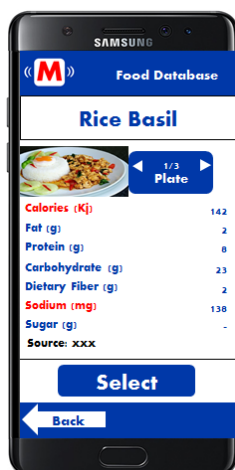
**Figure 6.14 Food Menu Screenshot**

According to this scenario, the user has rice porridge for breakfast as shown in Figure 6.15 Rice Porridge Screenshot. Notice that the portion size can be customized in order to mimic our real life situation.



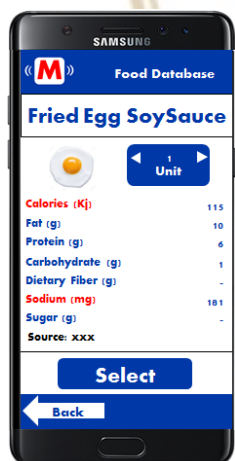
**Figure 6.15 Rice Porridge Screenshot**

According to the scenario, the user has rice basil and egg for lunch as shown in Figure 6.16 Rice Basil Screenshot.



**Figure 6.16 Rice Basil Screenshot**

According to the scenario, the user received additional protein from fried egg as shown in Figure 6.17 Fried Egg Screenshot.



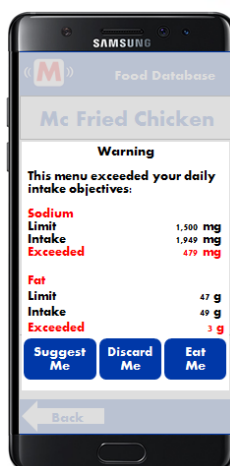
**Figure 6.17 Fried Egg Screenshot**

Here in Figure 6.18 Sodium Limit Screenshot notice that fat, sodium, and select button has turned red as a warning that these 2 macro-nutrients has exceeded the limit configured.



**Figure 6.18 Sodium Limit Screenshot**

The Application will warn the user for how much fat and sodium will exceed if the user consume this menu as shown in Figure 6.19 Sodium Warning Screenshot. Notice that the Application will mimic real life situation as much as it can, therefore, even if there's threshold breach, the user can still select the menu if they are determined to consume it.



**Figure 6.19 Sodium Warning Screenshot**

The user ordered a set menu which also consist of sugary drink and hit the sugar limit as shown in Figure 6.20 Sugar Limit Screenshot.

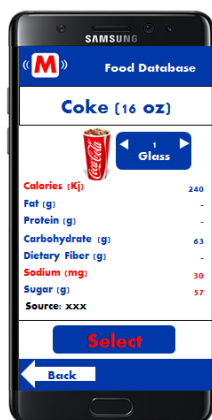


Figure 6.20 Sugar Limit Screenshot

As configured, the warning will pop up in order to warn the user of the current menu exceed limit as shown in Figure 6.21 Sugar Warning Screenshot.

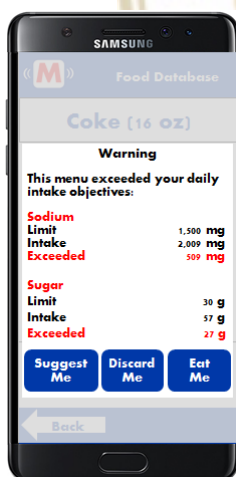


Figure 6.21 Sugar Warning Screenshot



Before dinner, the user felt a little hungry and wishes to drink hot coco. The user then received calories limit as shown in Figure 6.22 Calories Limit Screenshot.

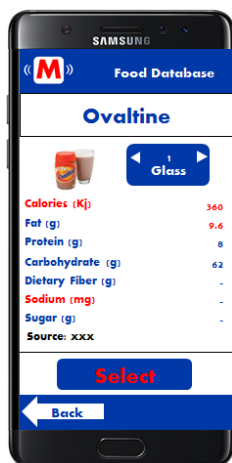


Figure 6.22 Calories Limit Screenshot

Notice that all warning will have auto suggest function as well in order to help the user figure out which food menu they can alternatively eats in order to stay in range as shown in Figure 6.23 Calories Warning Screenshot.

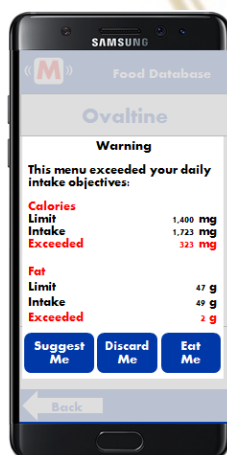
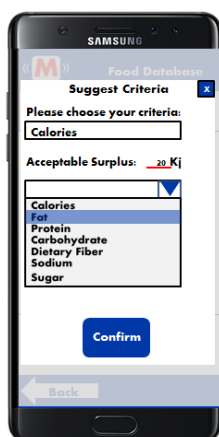


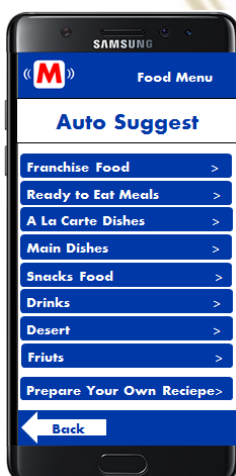
Figure 6.23 Calories Warning Screenshot

As shown in Figure 6.24 Auto Suggest Criteria Screenshot the auto suggests can be customize to suggest by which category. In this case, the user selected to search by calories. This multiple auto-suggest criteria has been requested from our interview in Appendix A Concept Design Interview with Elderly.



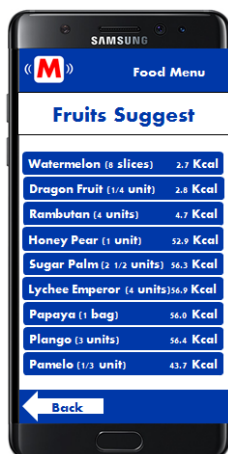
**Figure 6.24 Auto Suggest Criteria Screenshot**

The Application then asked which types of food the user wishes to consume in order to still stay in the range as shown in Figure 6.25 Auto Suggest Food Menu Screenshot.



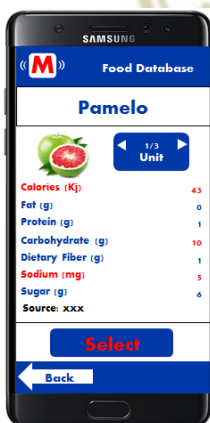
**Figure 6.25 Auto Suggest Food Menu Screenshot**

The user selected fruits, in which the Application will then suggest which types of fruits and their portion can be consume in order for the calories not to exceed the limit configured as shown in Figure 6.26 Auto Suggest Screenshot.



**Figure 6.26 Auto Suggest Screenshot**

The user then selected Pamela for dinner as shown in Figure 6.27 Pamela Screenshot. Noticed that portion size can be adjusted to smaller units.



**Figure 6.27 Pamela Screenshot**

In order to maintain good health, food consumed must be burned in the same amount of energy usage. In this case, calories has exceeded by a small amount within the configured range. The user then offered by the Application to help suggest which exercise to conduct in order to use up this excess as shown in Figure 6.28 Active Me Screenshot. This function has been recommended from our interview in Appendix I Retired Medical Professional Qualitative Interview.

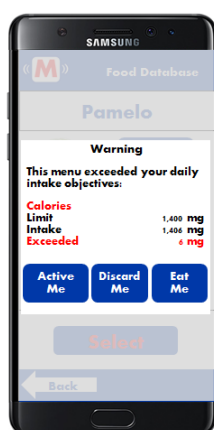


Figure 6.28 Active Me Screenshot

Figure 6.29 Food Diary Summary Screenshot summarizes the food diary for the day, showing each meals of the day.

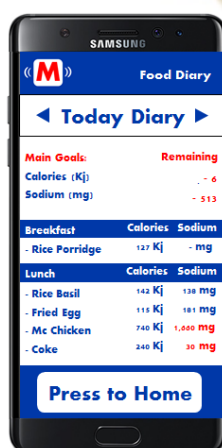
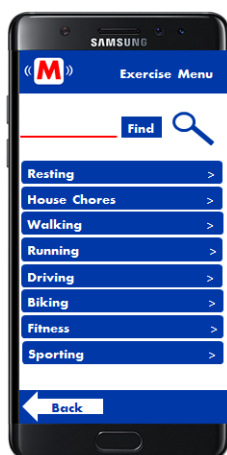


Figure 6.29 Food Diary Summary Screenshot

The exercise auto suggests helps suggest which exercise should be conducted in order to get rid of excess consumption.

Notice that exercise menus are especially selected to fit the lifestyle of elderly such as house chores as shown in Figure 6.30 Exercise Menu Screenshot.



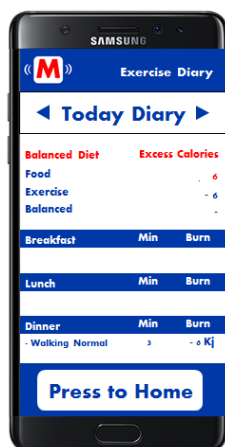
**Figure 6.30 Exercise Menu Screenshot**

The user selected to walk for 3 minutes to keep healthy as shown in Figure 6.31 Exercise Database Screenshot.



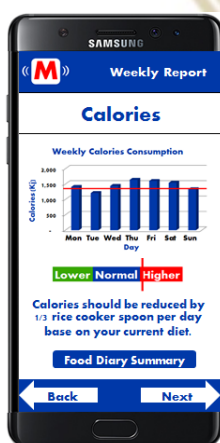
**Figure 6.31 Exercise Database Screenshot**

Exercise Diary will summarize diet balance as show in Figure 6.32 Exercise Diary Screenshot.



**Figure 6.32 Exercise Diary Screenshot**

Daily, weekly, monthly, annually report can be called up for all macro-nutrient as shown in Figure 6.33 Calories Report Screenshot. Notice that the Application not only give analysis of input, but also recommends changes in lifestyle in dietitian term for simple understand and real life implementation. Furthermore it also has simple risk bar to show the seriousness of the issue.



**Figure 6.33 Calories Report Screenshot**

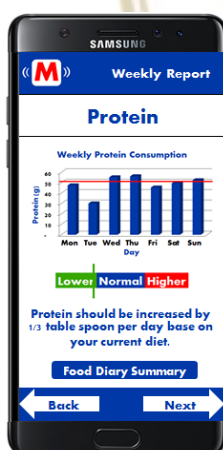


Daily, weekly, monthly, annually report can be called up for all macro-nutrient as shown in Figure 6.34 Fat Report Screenshot.



**Figure 6.34 Fat Report Screenshot**

Daily, weekly, monthly, annually report can be called up for all macro-nutrient as shown in Figure 6.35 Protein Report Screenshot.



**Figure 6.35 Protein Report Screenshot**

Daily, weekly, monthly, annually report can be called up for all macro-nutrient as shown in Figure 6.36 Carbohydrate Report Screenshot.

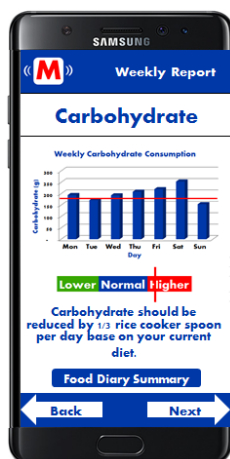


Figure 6.36 Carbohydrate Report Screenshot

Daily, weekly, monthly, annually report can be called up for all macro-nutrient as shown in Figure 6.37 Fiber Report Screenshot.

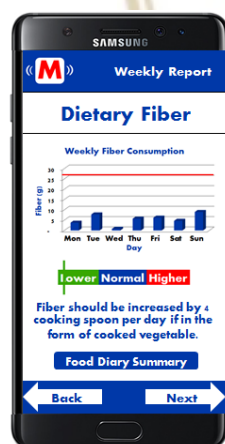


Figure 6.37 Fiber Report Screenshot

Daily, weekly, monthly, annually report can be called up for all macro-nutrient as shown in Figure 6.38 Sodium Report Screenshot.

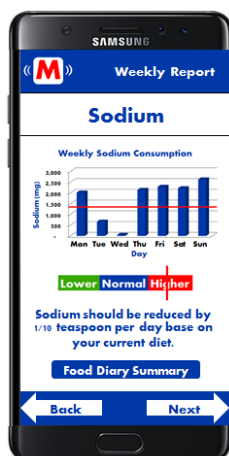


Figure 6.38 Sodium Report Screenshot

The user can click in to see which menu they ate, causes their threshold to exceed as shown in Figure 6.39 Monday Report Screenshot showing that crispy fried chicken causes sodium level to spike, therefore, should avoid this menu in the future. This function has been requested based from our interview in Appendix A Concept Design Interview with Elderly.

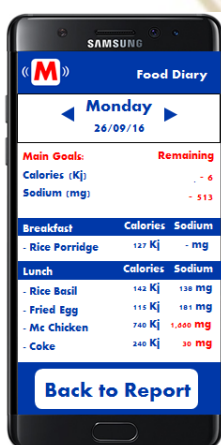
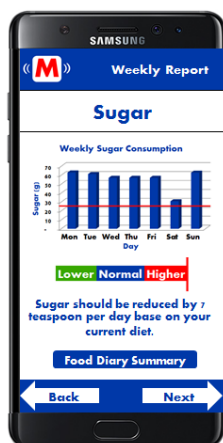


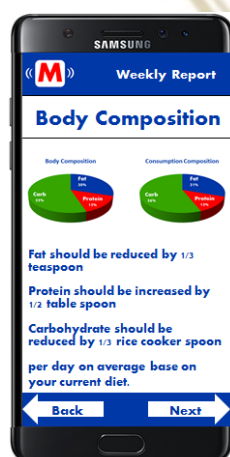
Figure 6.39 Monday Report Screenshot

Daily, weekly, monthly, annually report can be called up for all macro-nutrient as shown in Figure 6.40 Sugar Report Screenshot.



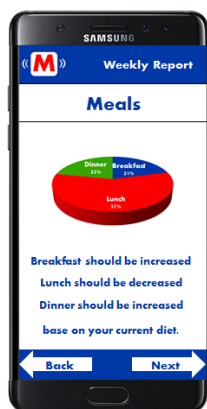
**Figure 6.40 Sugar Report Screenshot**

Our body is composed of muscle, bone, and fat, therefore, in order to eat healthily ones must eat protein, carbohydrate, and fat in proportion. Body Composition Report helps the user to understand whether their current food types consumed are appropriate based on their current diet as shown in Figure 6.41 Body Composition Report Screenshot.



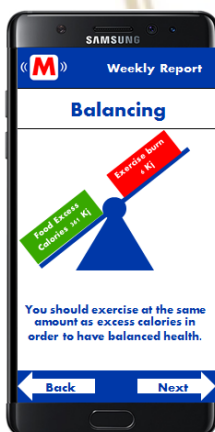
**Figure 6.41 Body Composition Report Screenshot**

Meals Report will help the user understand how to spread out each meal appropriately as shown in Figure 6.42 Meals Report Screenshot.



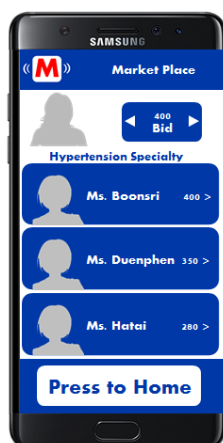
**Figure 6.42 Meals Report Screenshot**

In order to live a healthy lifestyle energy input must equal output; therefore, the Balance Report will help the user understand their food consumption in relation to their exercise activities as shown in Figure 6.43 Balance Report Screenshot.



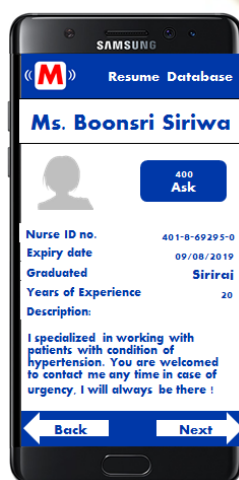
**Figure 6.43 Balance Report Screenshot**

The market place is where the user and medical professionals met in order to bid and ask for service price as shown in Figure 6.44 Market Place Screenshot. Separating nurses into category of their specialty has been requested during an interview in Appendix A Concept Design Interview with Elderly. This function has been requested from our interview in Appendix K Medical Professional Qualitative Interview.



**Figure 6.44 Market Place Screenshot**

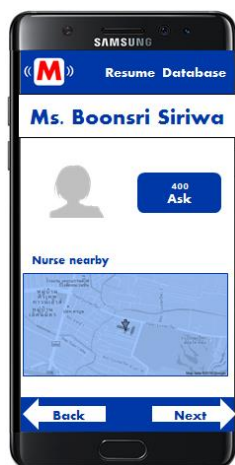
The user can access to see disclosed profile of the service supplier for evaluation and comparison as shown in Figure 6.45 Resume Database Screenshot.



**Figure 6.45 Resume Database Screenshot**

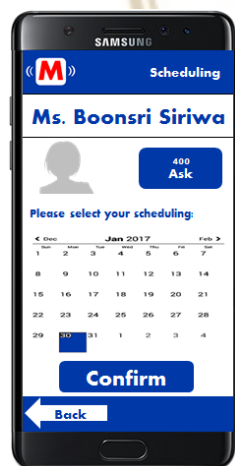


The user can also check whether this medical professional locates near the user residence as shown in Figure 6.46 Location Screenshot.



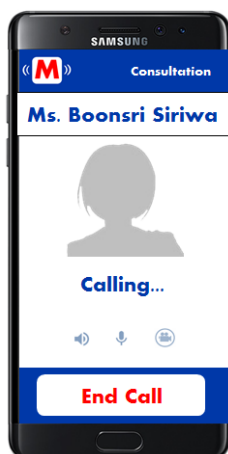
**Figure 6.46 Location Screenshot**

Consultation can be scheduled before hand in this scheduling function as shown in Figure 6.47 Scheduling Screenshot.



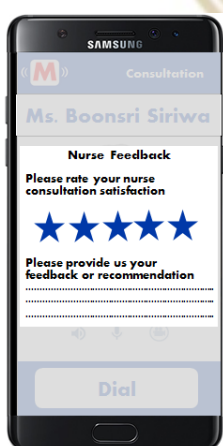
**Figure 6.47 Scheduling Screenshot**

Consultation by the medical professional can be given to the patient as scheduled as shown in Figure 6.48 Consultation Screenshot.



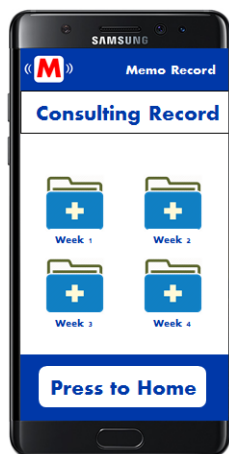
**Figure 6.48 Consultation Screenshot**

Feedback should be given after the consultation as a performance indicator for medical personal, and enhance other users evaluation and comparison on this medical personal as shown in Figure 6.49 Feedback Screenshot. The Feedback will be collected and evaluated for improvement, as we give importance to human resource quality, as nurses will be in direct contact with our customers.



**Figure 6.49 Feedback Screenshot**

After consultation, the medical professional must record a short memo as historical record of the consultation conducted as shown in Figure 6.50 Memo Record Screenshot.



**Figure 6.50 Memo Record Screenshot**

The user account can be enable giving access rights to their son/ daughter to peak in, in order to further help the medical professional look after the elders. Medical professional and the son/ daughter can connect to each other as shown in Figure 6.51, 6.52, 6.53 Chat Screenshot. This function has been requested by the elder, their children, and the nurse during our interview in Appendix D Elders Qualitative Interview, Appendix F Son Qualitative Interview, and Appendix K Medical Professional Qualitative Interview.



Figure 6.51 Chat 1 Screenshot



Figure 6.52 Chat 2 Screenshot the children can send a message to the nurse in order to clarify their parent's health issues.



**Figure 6.53 Chat 3 Screenshot** this way the nurses will not have to be obligated to answer any further calls, while the children can further help support their parents.

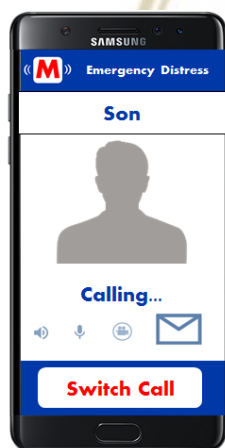
In case of emergency, the large emergency distress icon can be activated. This will revolve call around all related parties, the designated hospital, medical professional in contact, and son/daughter. Messages will also be sent to all 3 parties to inform of the user emergency status as shown in Figure 6.54, 6.55, 6.56 Emergency Distress Screenshots.



**Figure 6.54 Emergency Distress Hospital Screenshot**



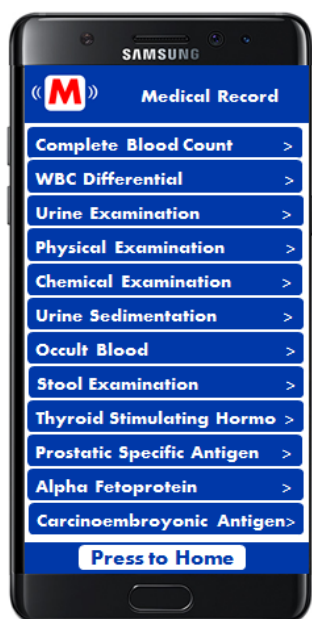
**Figure 6.55 Emergency Distress Medical Professional Screenshot** will help alert personal nurse to further take action as she will know the most detail about this patient condition.



**Figure 6.56 Emergency Distress Medical Family Screenshot** this way the children can take immediate action to help support their parents in time of need.

Medical Record function shown in Figure 6.57 Emergency Distress Medical Record Screenshot enable user to input their medical check-up from hospital in order to retain a complete historical medical record in one place, ease for recall to be given to the hospital in agreed.





**Figure 6.57 Emergency Distress Medical Record Screenshot**

### **6.9.3 Unique Selling Proposition**

Caring with a Human Touch!

The unique selling point of this application is Caring with a Human Touch. The application synchronizes both machine and human, working together to prevent chronic diseases. Without either one of them, the application will not achieve its objective. The software recommends, records, analyzes, and reports, in which nurses' then consult with the elders in order to give it a finishing touch of human like caring for prevention of chronic disease.

## **6.10 Price Strategy**

### **6.10.1 Application Structure**

#### **6.10.1.1 Freemium**

The Application is a freemium, with payment by usage for extra functions. Food and exercise diary and suggestion functions are free of charge in order to create traffic. However, health analysis in Report, conducting conference call & chat, and keeping medical record for future use will be charged. All these functions

are available only if the patient continues to use conference call with medical professional.

### **6.10.2 Revenue Channel**

#### **6.10.2.1 Commission of Consulting Fees**

When medical professionals and elderly clients agreed on their consulting fees, commission will be remitted from the transaction to the medical professionals for supplying the service.

Pricing will be based on willingness to sell plus markup, thereby, setting a minimum price floor. The supplier of services may mark up additionally from price floor, henceforth, final price will be the market price where both parties negotiated and arrived to their satisfied willing to buy and sell price.

The willingness to sell part of the minimum price will be remitted to medical professionals in order to guarantee minimum income, while the fixed percentage markup portion is considered as gross profit for the Company.

The additional price top up from the minimum price will all belong to the medical professionals.

Buyer of service must pay up before receiving the service. Commission will be remitted to seller of service in the following month.

### **6.10.3 Final Price - Pricing Strategy**

Within this one price, there are two pricing strategy behind, one for the Company, while another for the suppliers of service.

#### **6.10.3.1 Penetration Cost-Plus Pricing Strategy**

The Company uses penetration cost-plus pricing strategy, as cost-plus pricing will be used to cover cost and while providing some margin for profit during the first three years penetration period in order to gain market share to increase traffic within this Mobile Application.

After the first three years penetration period, mark-up pricing strategy can be used for setting more profitable minimum price floor, whereby, increasing the Company's portion. This will force medical professionals to increase

their value added consultation services in order to maintain equivalent income, as the final price will be determined by willingness to pay of the buyer.

The Company has the first mover advantage in the market place, thereby; it has monopolistic power to set minimum pricing at the initial stage. While later in the future as market share and traffic increases, it may acquire efficiency and higher bargaining power over both customers and suppliers, a natural monopolistic power in order to maintain minimum price floor thereafter.

#### 6.10.3.2 Value Base Pricing Strategy

On top of the minimum price, the supplier of service may additionally increase the fee. On the other hand, consumers can also set with bid price representing their willingness to pay price. The market mechanism will come into play to reduce overpricing and increase underpricing to market equilibrium price. Those with higher experiences can be valued higher than those of low experiences, whereby the market forces will determine their worth.

The willingness to sell on monthly package is at 216 THB (54 THB \* 4 calls) based from survey conducted in Appendix L Medical Professionals Purposive Homogeneous Survey as seen in Table 6.8 Willingness to Sell.

**Table 6.8 Willingness to Sell**

<b>Willingness to Sell</b>	<b>Month</b>	<b>Day</b>	<b>Hour</b>	<b>½ Hour</b>	<b>Package</b>
Desired Working Hours	91	3	1	0.5	4
Desired Income	9,849	328	108	54	216

Penetrative cost plus pricing of 30% margin industrial average is then added upon the willingness to sell price as shown in Table 6.9 Penetrative Cost-Plus Pricing.

**Table 6.9 Penetrative Cost-Plus Pricing**

<b>Margin</b>	<b>Price</b>	<b>Margin</b>	<b>Commission</b>
Package willingness to pay	216	30%	64

The willingness to pay on monthly package has the mode of 500 THB based from the survey conducted in Appendix H Willingness to Pay as can be seen in Table 6.10 Willingness to Buy.

**Table 6.10 Willingness to Buy**

Willingness to Buy	Mean	Mode
Package willingness to pay	560	500

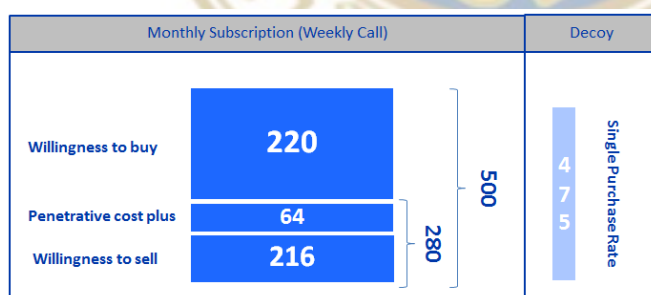
#### 6.10.4 Marketing Price - Pricing Strategy

##### 6.10.4.1 Decoy Pricing Strategy

As the Company's gross profit will be based on penetration cost-plus with minimal margin, the Company during the penetration period needs to survive on high volume low margin.

Price decoy strategy will be in use to discourage consumers from purchasing single consulting service by inflating single purchase minimum price floor, in order for consumers to purchase a package of 4 calls, a monthly service type with normal minimum price floor.

The decoy price is set at 475 THB, or 95% of the willingness to pay price as seen in Figure 6.58 Pricing Strategy.



**Figure 6.58 Pricing Strategy**

## **6.11 Channel Strategy**

### **6.11.1 Customer Channels**

The Application is mobile application for the prevention of chronic diseases in elderly citizens. The 2 most essential devices in order for the customers to receive the services from this mobile application are internet connectivity and smartphone devices. Therefore, our coordinated channel of marketing will be focused on those who originally have these 2 components. Furthermore, due to technical limitation of elderly citizens to purchase online, therefore, our channel of information will focus on their son/ daughter.

Our main channel of information will be setting up public account in Facebook social media in order to get the highest online reach to the son/ daughter of elderly in order to initiate free download in App Store for Android and Play Store for iOS for their parents.

Website domain will also be register, however, will not focus on this channel as the trend of internet users now shifted from traditional desktop viewer to those of mobile ones.

The second channel of information will be coordinated with offline channel partners such as hospitals for physical banner advertisement.

### **6.11.2 Supplier Channels**

As nurse consultation with elderly patients will be one of the functions within this application, acquiring sufficient supply of nurses will be crucial for the operation of this business model. We can divide nurses into retired and non-retired.

For retire nurses, direct channel of information will be initiated with associations of retired nurses as listed:

- The Nurses Association of Thailand
- Thai Private Nurse Society
- Advanced Practiced Nurse Association
- Thai Cardiovascular Thoracic Nurse Association



Although there are many sub-retired nurse associations as well as at each hospitals are also likely to have their own association, however, the most common association where the majority of retired nurses are a member of are Nurses Association of Thailand for public nurses and Private Nurse Society for private nurses. One nurse can be a member of many associations, but commonly will be listed in these two main associations. Thereby, approaching main associations for support will be sufficient channel of information for the supply of retired nurses.

As for current nurses our main channel of information will be targeted to social media users who are related to hospital.

The second channel of information will be coordinated with offline channel partners such as hospitals for physical banner advertisement. Publicity at the Nurse Federation of Thailand will also reach to large audiences and create public awareness.

## **6.12 Integrated Marketing Communication Strategy**

The integrated marketing communication will mostly be targeted to son/daughter of elderly for the online communication channels due to their age group, and to further purchase other goods and services online. On the other hand the offline may to target directly to the user of service.

### **6.12.1 E-Commerce Marketing**

The overview of e-commerce marketing channels can be seen in Figure 6.59 E-commerce Marketing Channels<sup>50</sup>.





**Figure 6.59 E-commerce Marketing Channels**

Our E-Commerce marketing strategy will be focused to the following 6 communication channels:

1. Social Commerce: Facebook, YouTube under Google
2. Referral: Social Referral
3. Online Advertising: Search Engine Marketing i.e. Google Online Display Ads
4. Online Marketing: Reviews within famous blog i.e. Pantip
5. Offline Advertising: Print ads in the form of X Banner with hospitals
6. PR, Events & Sales: PR, Events, Free Trial Period

#### 6.12.1.1 Social Commerce

Our base advertisement will be conducted with Facebook as most of the Thai netizens are connected with Facebook and form a network that can further be referred to others within the group.

Advertisement clip will be produced and advertised mostly within this Social Media mobile application. Facebook advertisement will receive those Click to Impression (CIT), these are the people who like the advertisement. Out of these people, there will be those who like and do install, known as Click to Install (CTI). However, out of these people, some will use them, known as Click to Use. Furthermore, some of these people who uses will later drop out, while the remaining

will become our permanent users. We will further go into details about the rate of conversion later in the financial section.

The advertisement clip will also be hosted onto YouTube under Google. YouTube advertisement for view and impression will be conducted only to target those audiences from Facebook Click to Install but not yet Click to Use audiences, in order to arouse them to take action and start using the Application.

#### 6.12.1.2 Referral

Our referral scheme will be mainly conducted via using social referral via Facebook Like and Share to friends and family.

#### 6.12.1.3 Online Advertising

Online advertising will be in the form of Google Display Ads within the search engine in order to support Facebook for the amount that Click to Impression (CTI) but inactive in Click to Install (CTI). We have selected Cost per Miles to create awareness with frequency capping of 10 times per one target audience.

#### 6.12.1.4 Online Marketing

Within the online marketing, we will start a mysterious blogger review on popular Thai blogger website as Pantip.

#### 6.12.1.5 Offline Advertising

Offline advertising will be use alternatively to the online marketing tools in order to directly target the mass audience located within hospitals for elders, son/ daughter, and medical professionals to see.

#### 6.12.1.6 Public Relation

As the Application represents social enterprise, we will promote our business and their social impact with medical associations such as with the Nurses Association of Thailand and Nurses Federation of Thailand. We will further increase our public relation with other related associations in order to spread the word of mouth of how the Application will bring social changes.

We will further write articles about the impact of our Application on our target customers through the use of online media channels, as increasing more exposure to the public will makes people more likely to feel interested and adopt the Application themselves.

#### 6.12.1.7 Events

We will attend Elderly Week event held at Queen Sirikit Convention Center once a year in July. This event has various hospitals open booth for free medical check-up, and other private companies selling specialized goods and services for the elders.

#### 6.12.1.8 Sales Promotion

Based on our survey conducted with son/ daughter of elderly, in Appendix G Son Purposive Homogeneous Survey we found that most popular activity to take care of ones parents is to have meal together.

Therefore, in order to make son/ daughter feels grateful with the service, and their parents happy, our promotion will be to give son/ daughter 2 free dinner tickets for every 6 months of continuous consultation services. This promotion aims at creating a long-term service purchases in order to create higher volume from low margin.

The first 6 months promotion will give free tickets for a family meal, while the next free tickets will be for the elders' friend, as an offline referral marketing strategy.

#### 6.12.1.9 Free Trial

Once installed, all users will receive 1 month free consulting trial. Medical professionals who will contact this service will be those retired but still re-certified. These medical professionals are highly experienced and are welcome to conduct the service free of charge for social good purposes based from our interview with retired nurses in Appendix J Retired Medical Professional Purposive Homogeneous Survey.

### 6.12.2 Word of Mouth Psychology

Word of mouth can be very economical and effective as people loves sharing information to the people around them. Word of mouth can be very persuasive, as friends don't lies, and if use with hypodermic needle, can inject the content right to the target audience via the use of social media. The viral message carried itself through the cyberspace with vivid and impact.

#### 6.12.2.1 Story Telling

Story Telling is one of the principles to create viral word of mouth. The story acts as a Trojan House to deliver the valuable message of the brand in story like format, that arouse the target to hit share and goes viral.

A clip will be created for the purpose of viral online sharing within Facebook social media that initially target those users profile that has elderly parents. The clip will create sense of urgency that invokes the emotional sense of guilt of the working age son who neglected giving care for his elderly parents.

#### 6.12.2.2 Emotional

Human are social animal, we tends to gossip and share information in order to shape our relationship with others, we simply share because we care.

The clip as an advertisement on Facebook is aimed specifically to create an emotional sense of guilt among the working class who left their parents behind, and provide the resolution that this Application can help care for their mother and father for better health. The clip creates an intense emotion of wrong doing, and finding a way out of that guilt, and is worth sharing to friends who are in similar emotional state.

#### 6.12.2.3 Social Currency

The Application has its remarkability in that it's the first health care application to have the merge between man and machine, focusing on human interaction rather than merely using software to assist people. With this inner remarkability, this will create a new buzz within the society as a new vehicle of social enterprise.

Furthermore, sales promotion will be conducted via using game mechanics to arouse social comparison that will lead to creating social currency as a tool to spread the word of mouth. Contest for taking the most warmth family photo under Facebook hash tag will receive free tickets for family dinner, as based on survey conducted in Appendix G Sons Purposive Homogeneous Survey, 74% of son/ daughter shows caring affection for the parents via having family meal. This will further helps promote the Application on Facebook, once contestant won the prize,



they will be promoted on the Application Facebook main page, which will create social comparison and social currency among their friends.

All customer relationship management and sales promotion will be conducted via using game mechanics or insider's scarcity & exclusivity.

### **6.13 Market Research**

The Application has in total of 4 related parties within the platform that connects all together to support the elders to prevent or maintain those chronic diseases which occurs based on unhealthy lifestyle.

The 4 related parties are:

1. The elders
2. Their son/ daughter
3. Retired medical professional
4. Medical professional

In summary of the demand side, based on secondary research and qualitative interview, we noted that elderly people are at high risk of chronic diseases, which is also confirmed through our survey conducted that more than half of the elderly citizens does not have sufficient knowledge of healthy living lifestyle to prevent these diseases. Although the majority of the elderly replied that they have someone to look after them based on the survey, however, based on both interview and survey on the side of the children, we found that those children do not have the time to look after their aged parents. Therefore, there's a reflection from both elders and children that they wishes to have an application that helps assist them based on interview and survey. This is then reinforced by both secondary research and primary research that the technological infrastructure has grown substantially that can support this business model. Based on the survey conducted, on average of those who wanted to use the application, they are willing to pay approximately 560 THB per month for the service, with the mode of 500 THB per month.

In summary of the supply side, based on interview and survey we found that there is demand from retired nurses to re-enter the work force, or rather to conduct community services free of charge. However, we have conducted supply estimation and found that this group cannot become our core provider of services, but rather can become our support. Based on our interview and survey, we found that nurses are physically tired from working and needed to go for overtime. They are glad to work on the application, which is less of physical work, but getting comparable income from their previous job which is approximately 11,200 THB per month. This is then reinforced by both secondary research and primary research that the technological infrastructure has grown substantially that can support this business model. And this is the reason why in our survey, we found that the majority who has permanent job already, do not wish to conduct another overtime job that require physical attention.

#### **6.13.1 Research Design**

Our main goal in conducting the market research for this Application is in order for us to understand our target groups better.

These target groups of our interest, has their predetermined characteristic e.g. elders are defined by age, son/ daughter group are defined by having aged parents, and medical professionals are defined by qualification and age. The researches were not intended to make a generalization to the entire random population, but a predefined one.

We will conduct a mixed methods research designs by initially conduct one qualitative interview with each of the target group in order to understand their needs, and later conduct 50 non-probability purposive homogeneous sampling on each of the 4 specific focus group having similar characteristics of our interest in order to confirm our understanding of the group being studied.

#### **6.13.2 Elders Market Research**

##### **6.13.2.1 Elders Qualitative Interview**

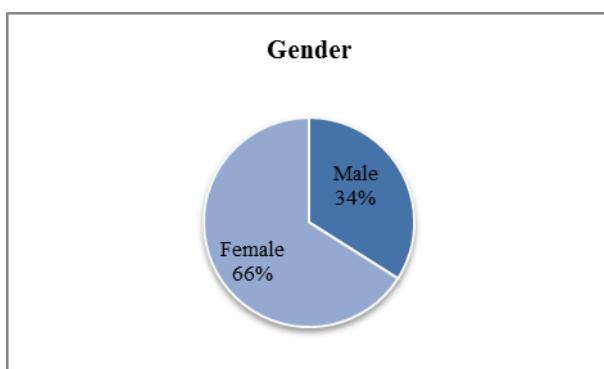
We have conducted an interview with an elder living alone that has hypertension non-communicable disease. Please find Appendix D Elder Qualitative Interview.



### 6.13.2.2 Elders Purposive Homogeneous Survey

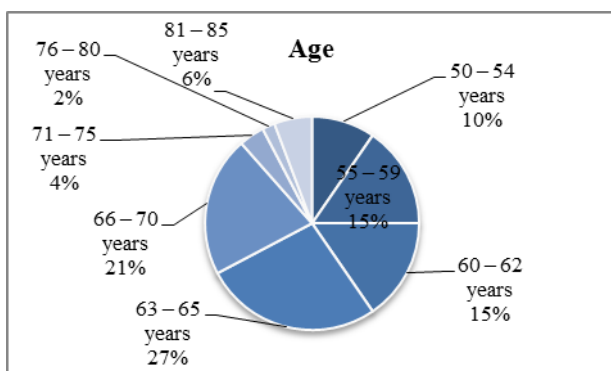
We have conducted survey with an elder please find Appendix E Elder Purposive Homogenous Survey for the survey submitted.

There were 53 people who conducted the survey, 18 male and 35 female. Based on the respondents, 66% are female, while the remainders 34% are male as shown in Figure 6.60 Elder Survey Gender.



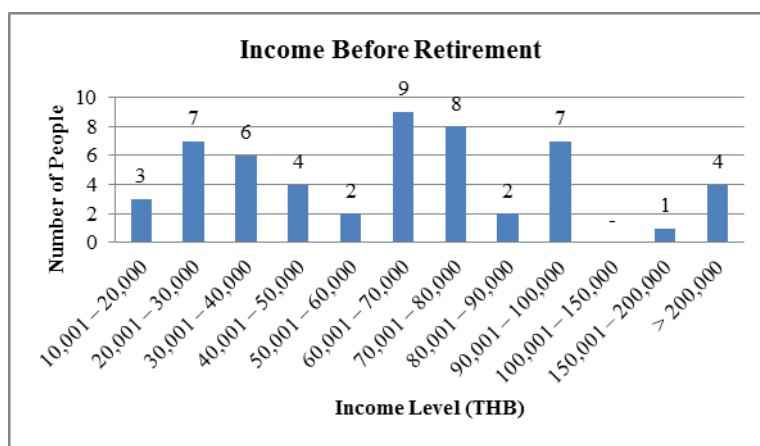
**Figure 6.60 Elder Survey Gender**

Approximately half of the respondents came from age group of 63 to 70 years of age. An additional of 15% came from age group 60 to 62, and another 15% from age group 55 to 59 years as shown in Figure 6.61 Elder Survey Age. We assumed that above 85 years no longer uses the internet, smart devices, or are currently in elderly home having nurses to look after them. This makes people above 85 years old no longer our target population.



**Figure 6.61 Elder Survey Age**

The elderly population has various income levels before their retirement as shown in Figure 6.62 Elder Survey Income Before Retirement.

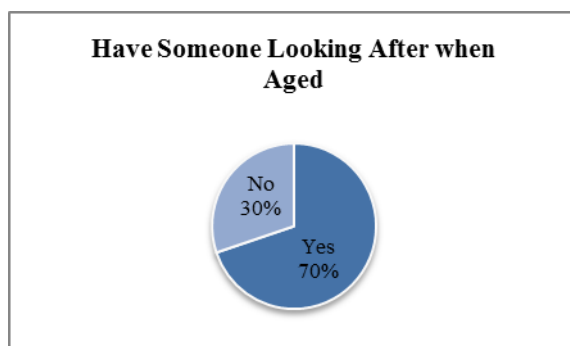


**Figure 6.62 Elder Survey Income Before Retirement**

Based on the respondents, 70% of elderly believed that they have someone to care for them as shown in Figure 6.63 Have Someone Looking After when Aged.

However, in another survey conducted on the part of the son/daughter, the opposite can be found. The children are worried about their parents, having no one to look after, and within the current economic situation, they hardly spend time with their parents.

Although the elderly respond that they have someone to look after them, however, they also demand for other health care services as we will see later on.

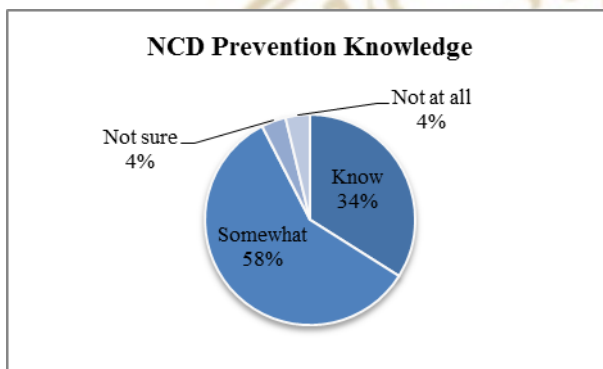


**Figure 6.63 Have Someone Looking After when Aged**

As shown in Figure 6.64 NCD Prevention Knowledge, the majority of the elderly, approximately 60% says that they know somewhat about how to take care of themselves in order to prevent any more development of diseases in old age. While 30% believe that they know how to take care of themselves.

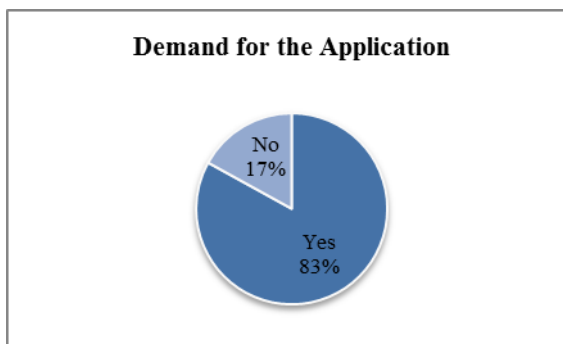
And none of the respondents says that they know very well how to take care of themselves when they get older.

This is an opportunity for the Application to help educate the elderly, with reliable sources of information, in order to help the consumer to be able to care for themselves in terms of living lifestyle.



**Figure 6.64 NCD Prevention Knowledge**

Although approximately 60% believes that they somewhat know how to take care of themselves, 83% of respondents would like to have this Application to help them further live a healthy life as shown in Figure 6.65 Elder Survey Demand for the Application.



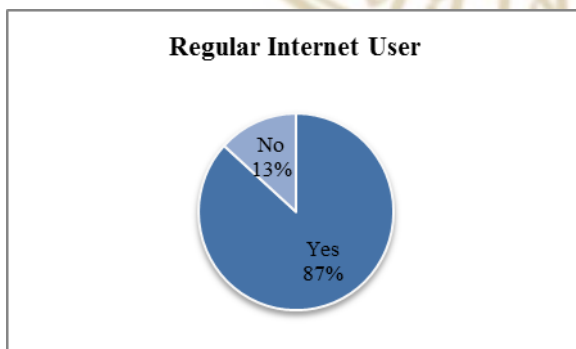
**Figure 6.65 Elder Survey Demand for the Application**

Based on the respondents, 90% would like to join for community group activities via the Application as shown in Figure 6.66 Demands for Group Activities. The group activities will further creates a network of bond and relationship among users for tangible ties, rather than a standalone user. This will further create customers royalty and becomes the company's advantage in the future.



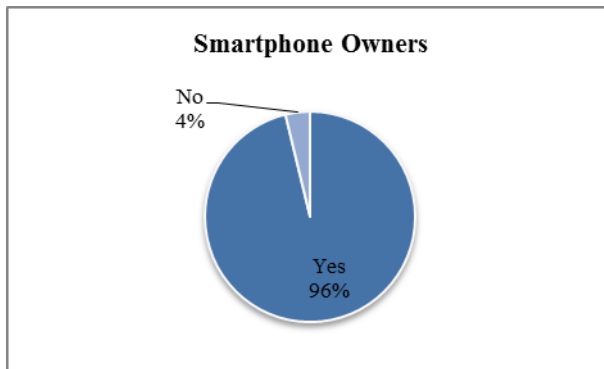
**Figure 6.66 Demands for Group Activities**

Based on the respondent, 87% of the elder are regular internet users as shown in Figure 6.67 Elder Survey Regular Internet User. Based on our analysis of the data, there's no correlation between elderly age and internet usage. Therefore, internet usage among elderly people may be related to their motivation to use, rather than correlates directly with age.



**Figure 6.67 Elder Survey Regular Internet User**

Based on the survey conducted, 96% of elderly owns a smartphone as shown in Figure 6.68 Elder Survey Smartphone Owners. This is due to the fact that we launch an online survey in order to directly reach our target.



**Figure 6.68 Elder Survey Smartphone Owners**

### **6.13.3 Son/ Daughter Market Research**

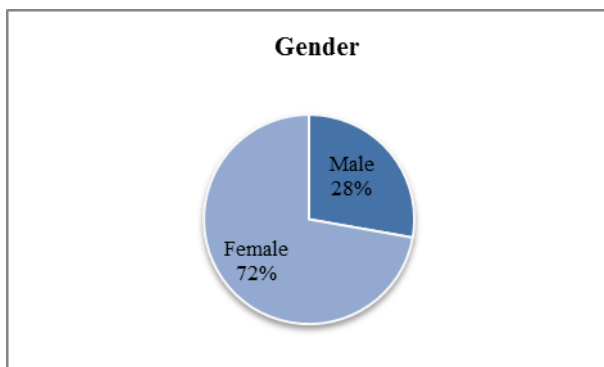
#### **6.13.3.1 Son/ Daughter Qualitative Interview**

We have conducted an interview with a son of an elder; please find Appendix F Son Qualitative Interview.

#### **6.13.3.2 Son/ Daughter Purposive Homogeneous Survey**

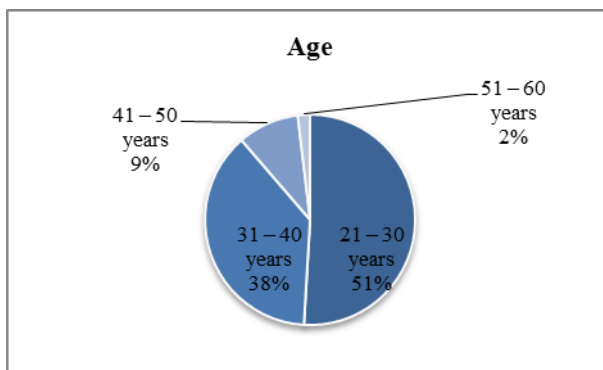
We have conducted survey with a son of an elder; please find Appendix G Son Purposive Homogenous Survey for the survey submitted.

There were 53 respondents, 39 are female and 15 are male. Based on the respondents, 72% are female, while the remainders 28% are male as Shown in Figure 6.69 Sons/ Daughter Survey Gender.



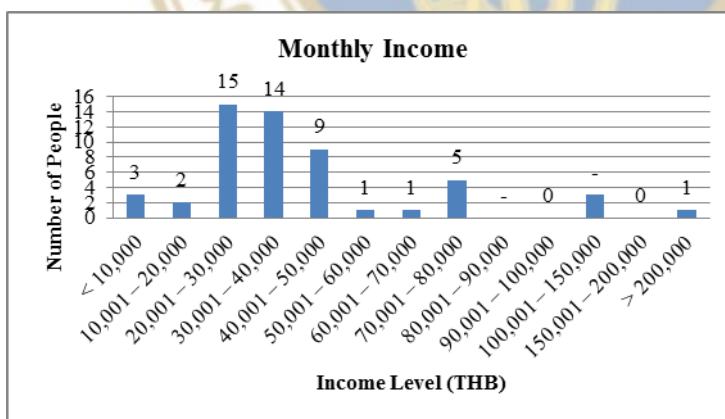
**Figure 6.69 Sons/ Daughter Survey Gender**

Half of the respondents are at the age of 21 - 30 years old, while another 38% are at the age of 31 - 40 years old and 9% are at the age of 41 to 50 years old as shown in Figure 6.70 Sons/ Daughter Survey Age. The majority age groups belong to Generation X and Generation Y, which are our core target groups that have aged parents in their family.



**Figure 6.70 Sons/ Daughter Survey Age**

Half of the respondent has monthly income level from 20,001 - 40,000 THB as shown in Figure 6.71 Sons/ Daughter Survey Income.

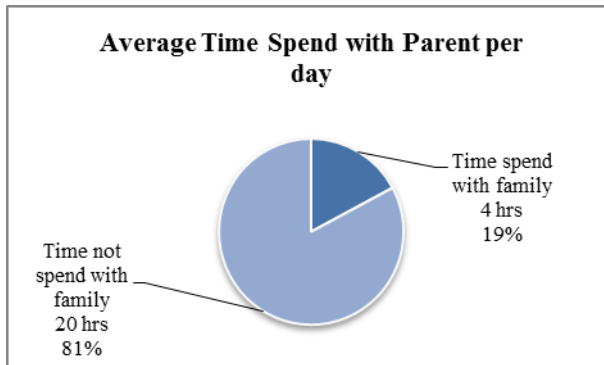


**Figure 6.71 Sons/ Daughter Survey Income**

Based on the respondents, the total average time they spend time with their parent on a daily basis is around 4 hours per day. Or on average on weekdays is approximately 2.5 hours per day. This inferred that most of the aging

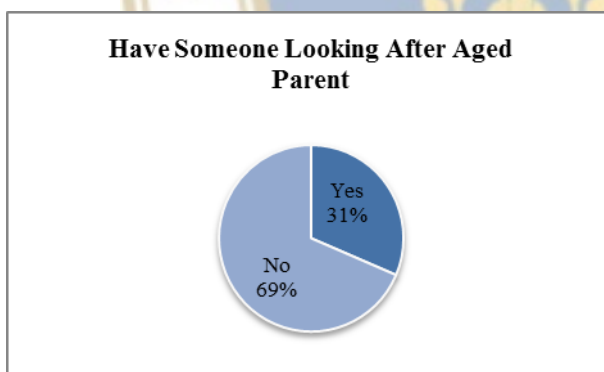


parents are left unattended by their children as shown in Figure 6.72 Average Time Spend with Parent per Day.



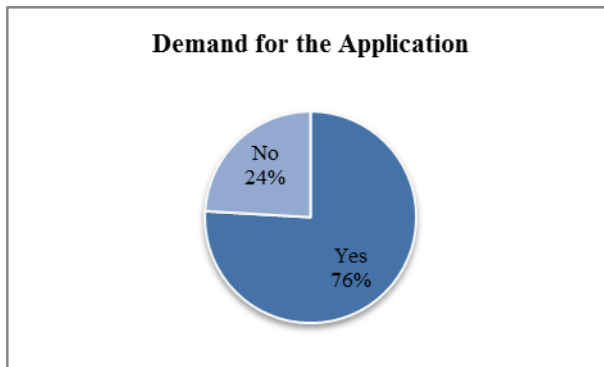
**Figure 6.72 Average Time Spend with Parent per Day**

Furthermore, 69% of respondents replied that they have no one currently taking care of their aged parent as shown in Figure 6.73 Have Someone Looking after Aged Parent.



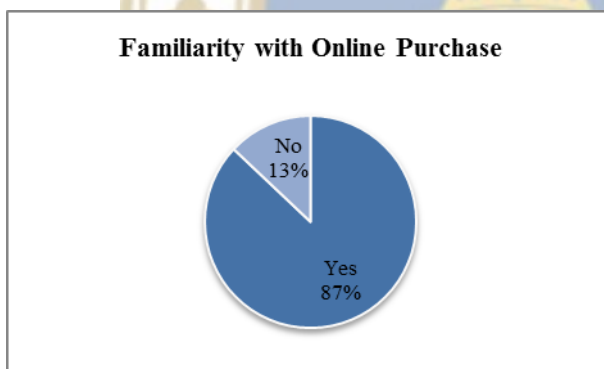
**Figure 6.73 Have Someone Looking after Aged Parent**

In which 76% accepted that healthcare application such as this will be useful to help them take care of their parent as shown in Figure 6.74 Son/ Daughter's Demand for the Application.



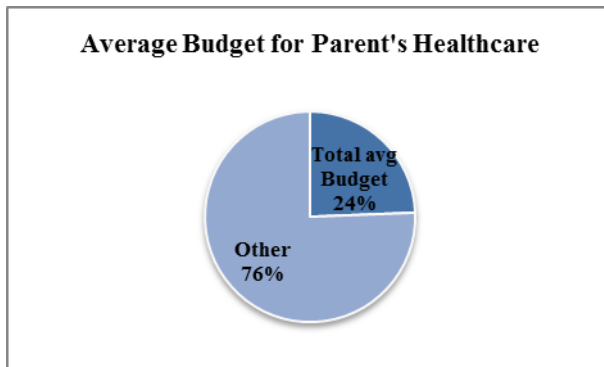
**Figure 6.74 Son/ Daughter's Demand for the Application**

Based on the respondents, 87% are familiar in conducting online purchase as shown in Figure 6.75 Familiarities with Online Purchase. As their aged parents may not be able to perform complex transactions online, however, their children are familiar with this kind of transactions. Furthermore, other online services can be conducted such as online market place for specialized goods for elderly people.



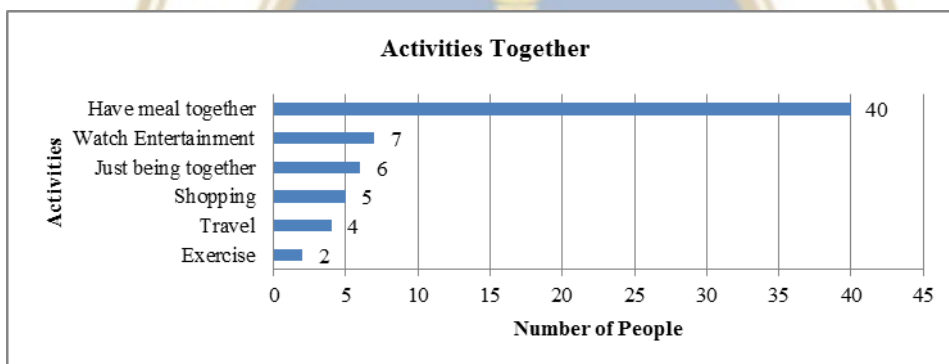
**Figure 6.75 Familiarities with Online Purchase**

Regardless of income level, the average monthly budget of the respondents for taking care of aged parent is approximately 10,000 THB per person or around 25% of their income as shown in Figure 6.76 Average Budget for Parent's Healthcare.



**Figure 6.76 Average Budget for Parent's Healthcare**

The majority of respondents say their family activities is having a meal together as a family, amounts to 74% as shown in Figure 6.77 Activities Together. We will further use family dinner as our promotional tools.

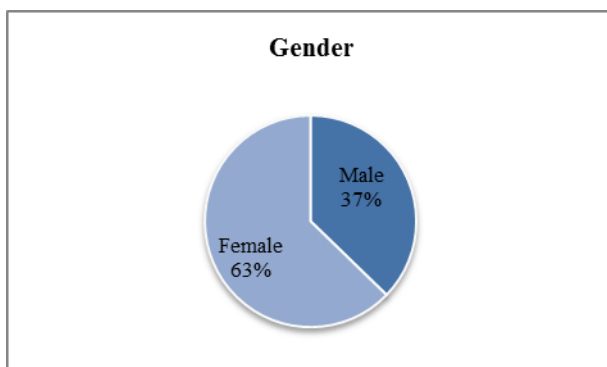


**Figure 6.77 Activities Together**

Furthermore, we have conducted an additional purposive homogenous survey after concept design has been completed, in order to support that the willingness to pay of users are generally higher than that of service price as shown in Appendix H Willingness to Pay.

Based on the survey conducted, we found that on average, the purchasers are willing to pay at 560 THB per month, while the mode is at 500 THB per month.

Based on the respondents, 63% are female, 37% are male as shown in Figure 6.78 Willingness to Pay Gender of Respondents.



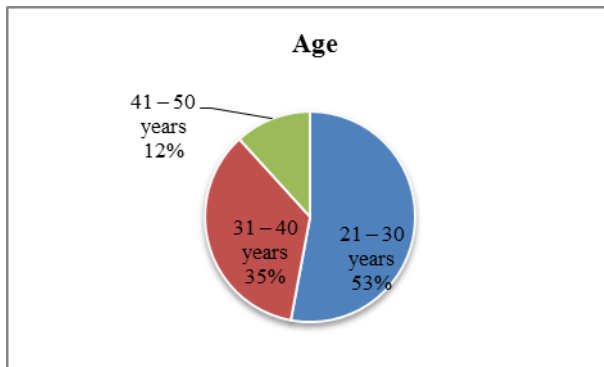
**Figure 6.78 Willingness to Pay Gender of Respondents**

Approximately half of the respondents are generation Y and the other half are generation X, having elderly parents in accordance with our target market as shown in Figure 6.79 Willingness to Pay Age of Respondents. Notice that age group 21 – 30 years give average price of 427 THB, 31 – 40 years give average price of 769 THB, and 41 – 50 years average price of 516 THB. The highest willingness to pay comes from 30s to 40s, but drop in the 20s. This may be due to 30s upward sees their parents are aging; therefore, they have the sense of urgency. Furthermore, there are also aging as well, while the effect will be clear when they are 50s upward, but this signified that there are now aware. This is shown in Table 6.11 Willingness to Pay Age Group.

**Table 6.11 Willingness to Pay Age Group**

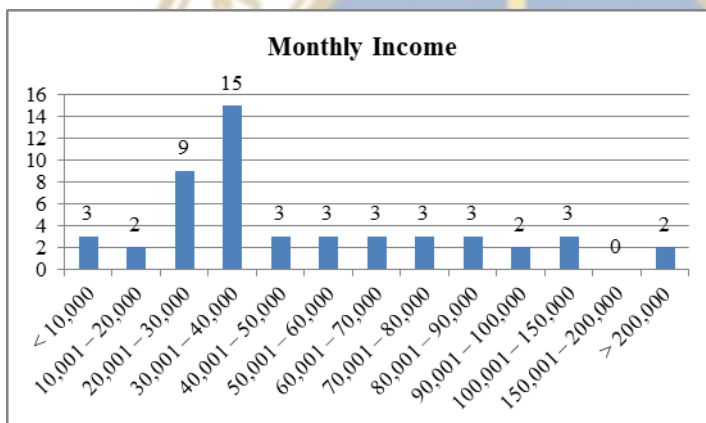
Age Group	Avg. Willingness to Pay (THB)	Focus Priority
21 - 30	427	3
31 - 40	769	1
41 - 50	516	2

Therefore, if we were to conduct online marketing, it would be best to firstly target those who are 30 and above as this group has purchasing power, are aware, and need less education.



**Figure 6.79 Willingness to Pay Age of Respondents**

Generally, their income ranges from 20,000 to 40,000 THB per month as shown in Figure 6.80 Willingness to Pay Monthly Income of Respondents.



**Figure 6.80 Willingness to Pay Monthly Income of Respondents**

### 6.13.4 Retired Medical Professionals Market Research

#### 6.13.4.1 Retired Medical Professionals Qualitative Interview

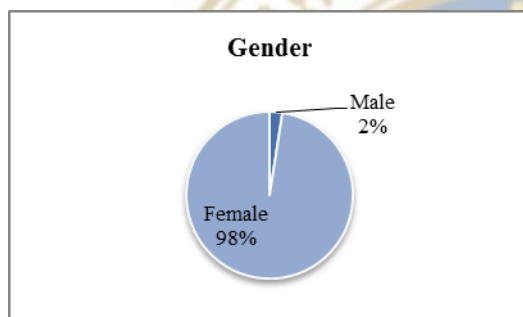
We have conducted an interview with a retired medical professional; please find Appendix I Retired Medical Professional Qualitative Interview.

#### 6.13.4.2 Retired Medical Professionals Purposive

##### Homogeneous Survey

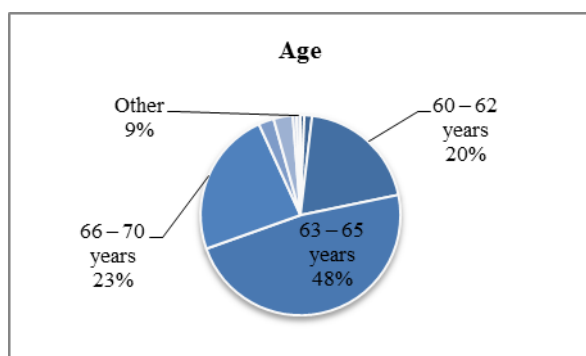
We have conducted survey with a retired medical professional; please find Appendix J Retired Medical Professional Purposive Homogenous Survey for the survey submitted.

Based on the survey conducted of 162 retired medical professionals, 158 are female and 4 are male. Based on 162 respondents, 98% are former female nurses as shown in Figure 6.81 Retired Medical Professional Gender. Total amount of license retired nurses are approximately 36,000 people, willing and able to supply the service of 10,800 people.



**Figure 6.81 Retired Medical Professional Survey Gender**

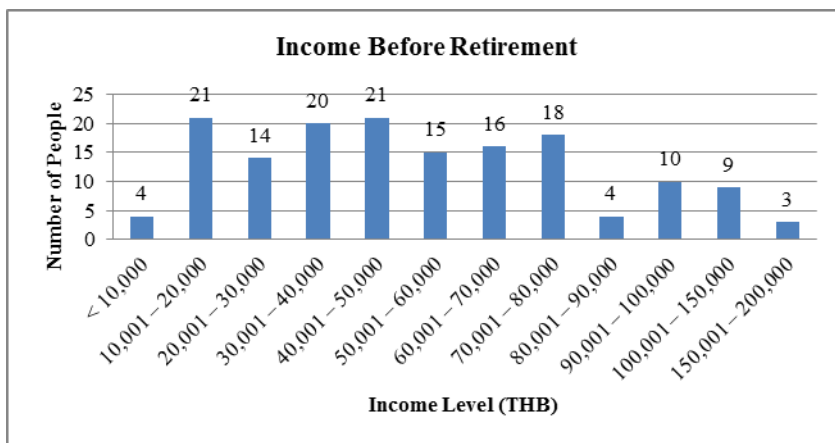
The majority of respondents have the age between 66 to 70 years, amounts to 91%. 20% of those are from age of 60 to 62, the remaining 71% from the age of 63 to 65 as shown in Figure 6.82 Retired Medical Professional Survey Age.



**Figure 6.82 Retired Medical Professional Survey Age**



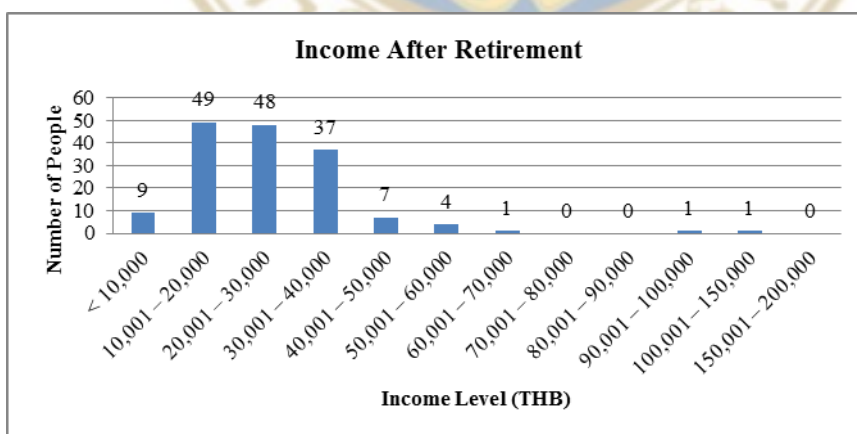
The respondents has varies income before retirement as shown in Figure 6.83 Retired Medical Professional Survey Income before Retirement.



**Figure 6.83 Retired Medical Professional Survey Income before Retirement**

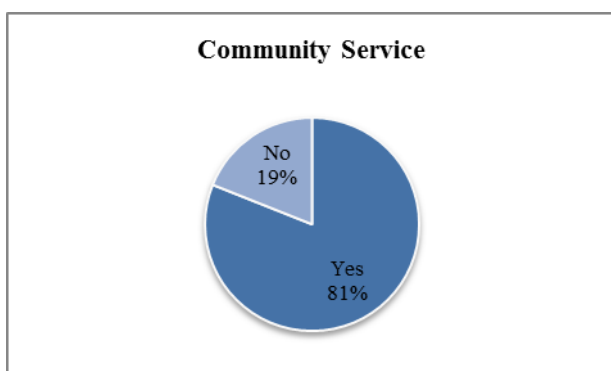
After retirement, income level range from 10,000 to 40,000 THB per month amounts to 86% of respondents as shown in Figure 6.84 Retired Medical Professional Survey Income after Retirement.

This signified that money is not a big issue for retired medical personal, as we will see in later response.



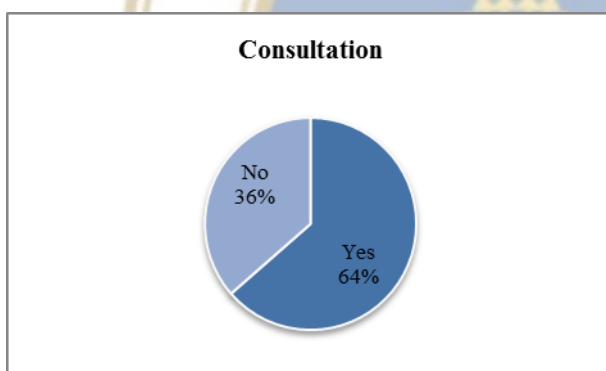
**Figure 6.84 Retired Medical Professional Survey Income after Retirement**

81% of respondents still would like to conduct community service after their retirement as shown in Figure 6.85 Community Service.



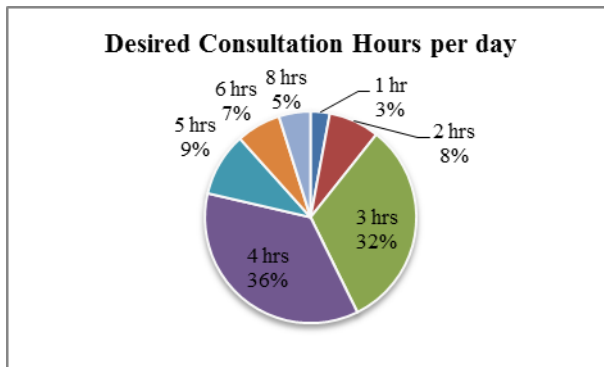
**Figure 6.85 Community Service**

In which 64% of respondents willing to provide service within the application as shown in Figure 6.86 Consultation. Therefore, we considered that retired nurses may not become our core service provider, but rather, can help support during the free trial phrase having supply of approximately 21,600 personal.



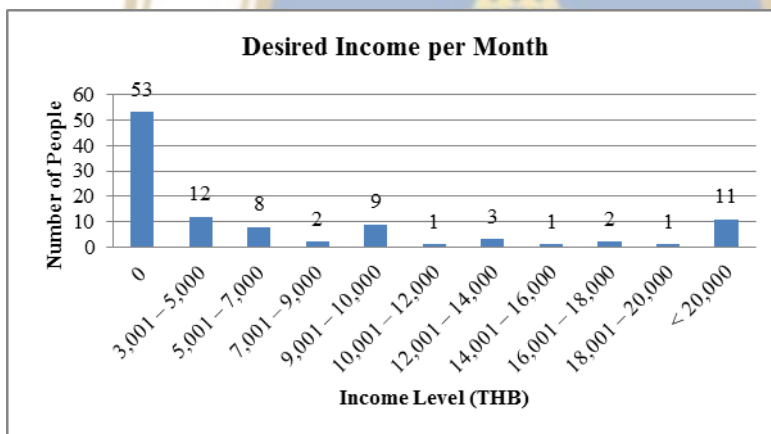
**Figure 6.86 Consultation**

Out of those would wanted to provide the service, average hours is between 3 to 4 hours per day as shown in Figure 6.87 Desired Consultation Hours per day.



**Figure 6.87 Desired Consultation Hours per day**

More than half of the respondents would like to provide the service for free as shown in Figure 6.88 Desired Income per Month. Therefore, out of the 21,600 personal, there will be 10,800 personal that can help provide free trial services.



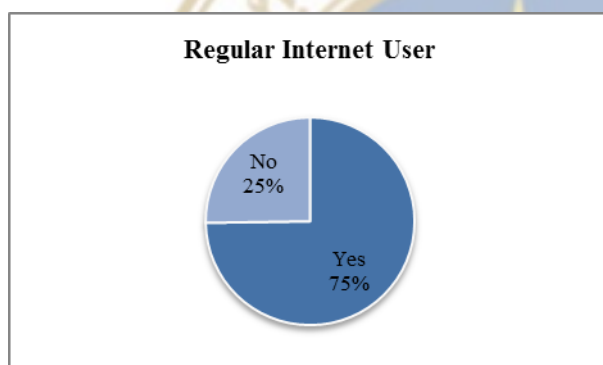
**Figure 6.88 Desired Incomes per Month**

Therefore, we have sufficient supply of retired nurses for our free trial as shown in Table 6.12 Supply of Retired Nurses. As retired nurses are willing to work approximately 3 hours per day, taking on 6 customers' calls, we therefore computed the required supply of retired nurses to conduct free trial as below. Notice that our required retired nurses remain less than the entire market supply.

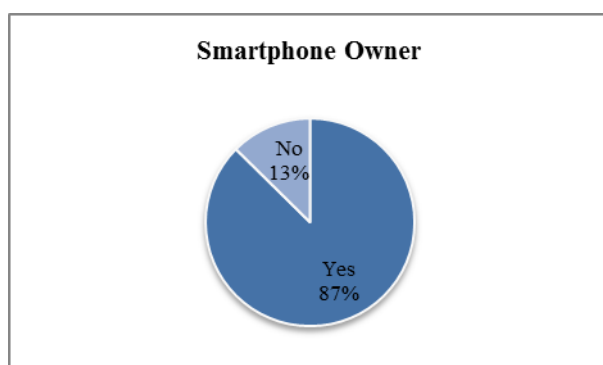
**Table 6.12 Supply of Retired Nurses**

<b>Year</b>	<b>New Customers</b>	<b>Retired Nurses</b>
Year 1	6,266	1,044
Year 2	20,888	3,481
Year 3	41,777	6,963
Target Market	130,214	10,800

Out of 103 respondents that are willing to render the service, 77 people or 75% are regular users of the internet as shown in Figure 6.89 Regular Internet Users.

**Figure 6.89 Regular Internet Users**

Out of 103 respondents that are willing to render the service, 87% own smartphone devices as shown in Figure 6.90 Smartphone Owner.

**Figure 6.90 Smartphone Owner**

### 6.13.5 Medical Professionals Market Research

#### 6.13.5.1 Medical Professionals Qualitative Interview

We have conducted an interview with a medical professional; please find Appendix K Medical Professional Qualitative Interview.

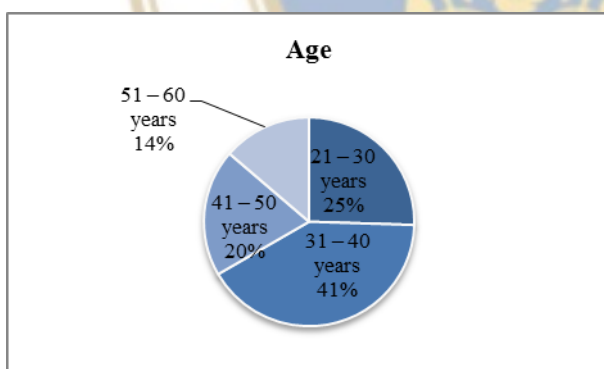
#### 6.13.5.2 Medical Professionals Purposive Homogeneous Survey

We have conducted survey with a medical professional; please find Appendix L Medical Professional Purposive Homogenous Survey for the survey submitted.

All 51 respondents are female nurse who are currently still working, which is typical for medical profession of nurses in Thailand.

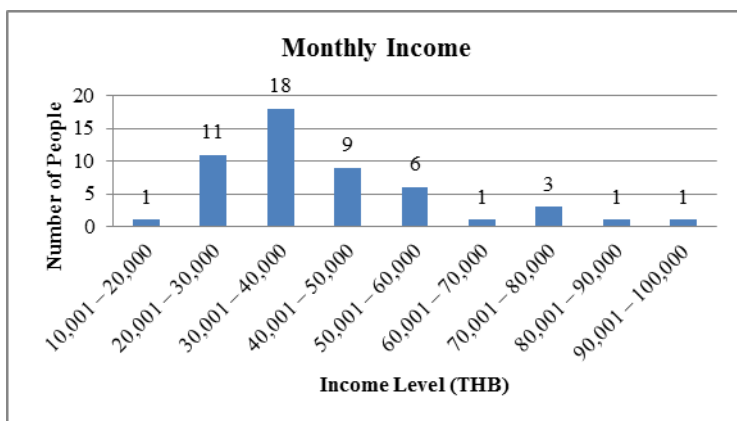
The major age are 41% at the age of 31 - 40 years old amounts to 21 people, 25% are at the age of 21 to 30 years old amounts to 13 people as shown in Figure 6.91 Medical Professional Survey Age.

This makes the ages from 21 to 40 years old amounts to 60% of the respondents, in which this group should be the main provider of services.



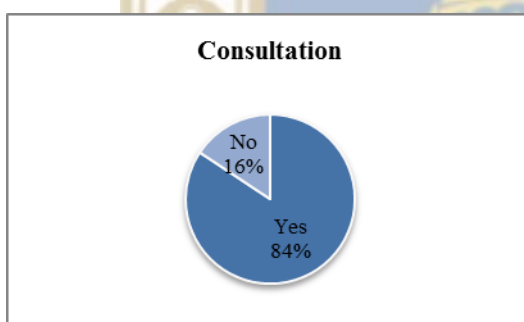
**Figure 6.91 Medical Professional Survey Age**

The majority of respondents has income per month (includes OT, etc.) from 20,001 to 40,000 THB, amounts to approximately 60% of respondents as shown Figure 6.92 Medical Professional Survey Monthly Income. These should correspond to the age group above.



**Figure 6.92 Medical Professional Survey Monthly Income**

Current nurses replied that they are interested in this kind of freelance work on the Application, amounts to 84% of respondents as shown in Figure 6.93 Nurse Consultation. This should be due to the fact that the Application will reduce their physical working hours.

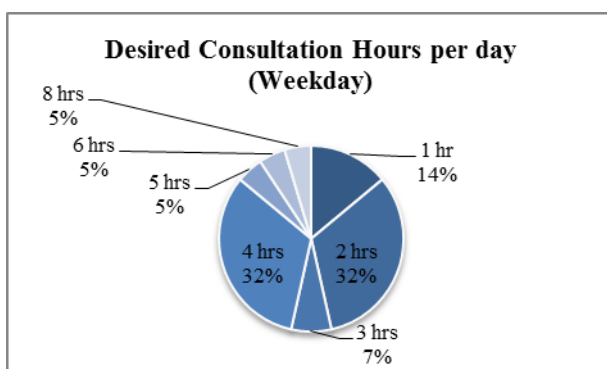


**Figure 6.93 Nurse Consultation**

These nurses who are interested in performing the job, 33% wanted to work for 2 hours a day on weekday, and another 33% wanted to work for 4 hours a day as shown in Figure 6.94 Desired Consultation Hours per Day (Weekday).

Therefore, on average desired working hours is 3 hours per day. On average, nurses will take approximately 4 hours overtime for weekdays based on our interview.

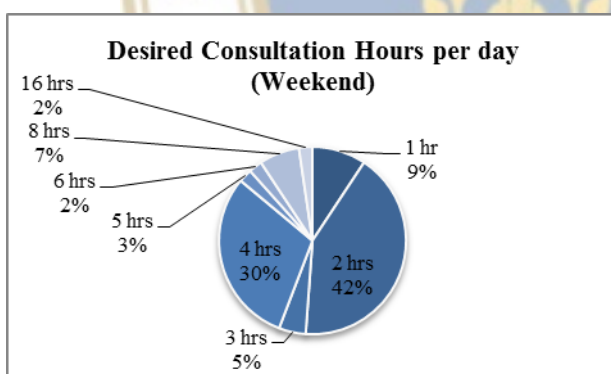




**Figure 6.94 Desired Consultation Hours per Day (Weekday)**

These nurses who are interested in performing the job, 42% wanted to work for 2 hours a day on weekend, and another 30% wanted to work for 4 hours a day as shown in Figure 6.95 Desired Consultation Hours per Day (Weekend).

Therefore, on average desired working hours is 3 hours per day. On average nurses will work overtime for one day over the weekend for 8 hours, or 4 hours per day based on our interview.

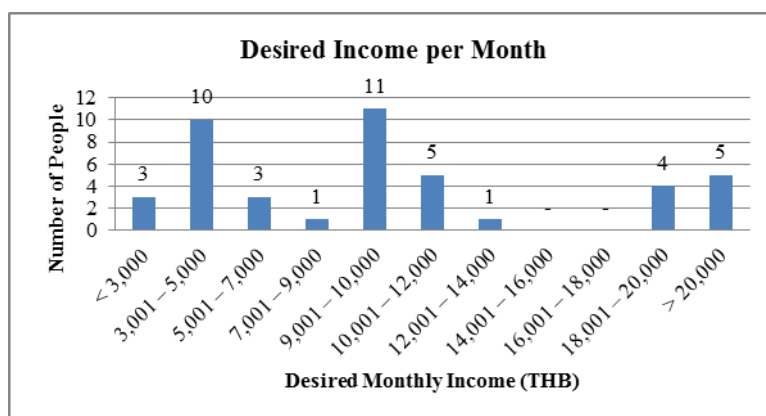


**Figure 6.95 Desired Consultation Hours per Day (Weekend)**

On average, the desired income per month for this service is approximately 9,800 THB as shown in Figure 6.96 Desired Income per Month.

The average working hours for the service per month is approximately 92 hours.

Therefore, the desired income per hour is approximately 100 THB or 50 THB per 30 min call.



**Figure 6.96 Desired Incomes per Month**

The amount that nurses asked for is the same amount of overtime they usually get at their permanent job, which is 112 hours per month multiply by 100 THB per hour, equals to 11,200 THB. The difference between the two is that their permanent job requires physical attention, while the Application only requires mental attention, which is less exhausting.

We have computed the required supply of nurses based on their average working hours as below in Table 6.13 Required Supply of Nurses. The entire nurse market remains to be sufficient for our required supply of nurses.

**Table 6.13 Required Supply of Nurses**

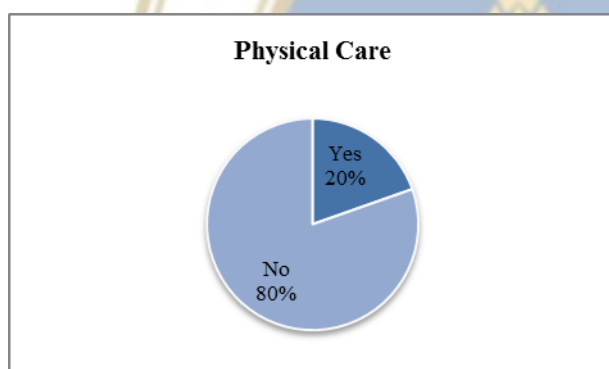
Year	Accum. Customers	Nurses
Year 1	6,266	137
Year 2	27,155	594
Year 3	68,931	1,508
Target Market	130,214	141,391

Based on the survey conducted for our nurse portfolio computation, we found that one nurse will look after 46 patients, which is 1.5 patients per day as shown in Table 6.14 Nurse Portfolio.

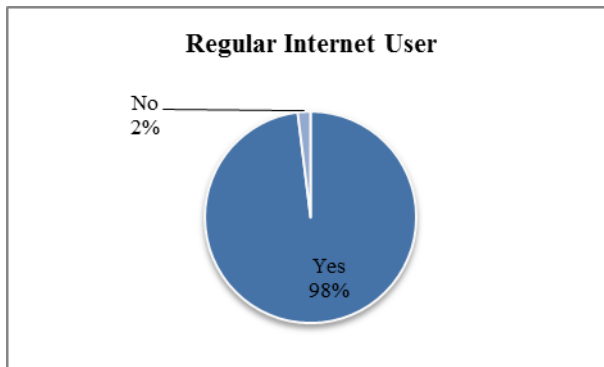
**Table 6.14 Nurse Portfolio**

<b>Nurse Portfolio:</b>	
Income per month (THB)	9,849
Package (calls)	4
Income per call (THB/ call)	54
No. of customers per month (people)	46
No. of customers per day (people)	1.5

80% of the respondent does not want to further perform physical care of patients in addition to their 8 hours' work as shown in Figure 6.97 Physical Care. This coincides with our interview that nurse medical profession wishes for lesser physical work.

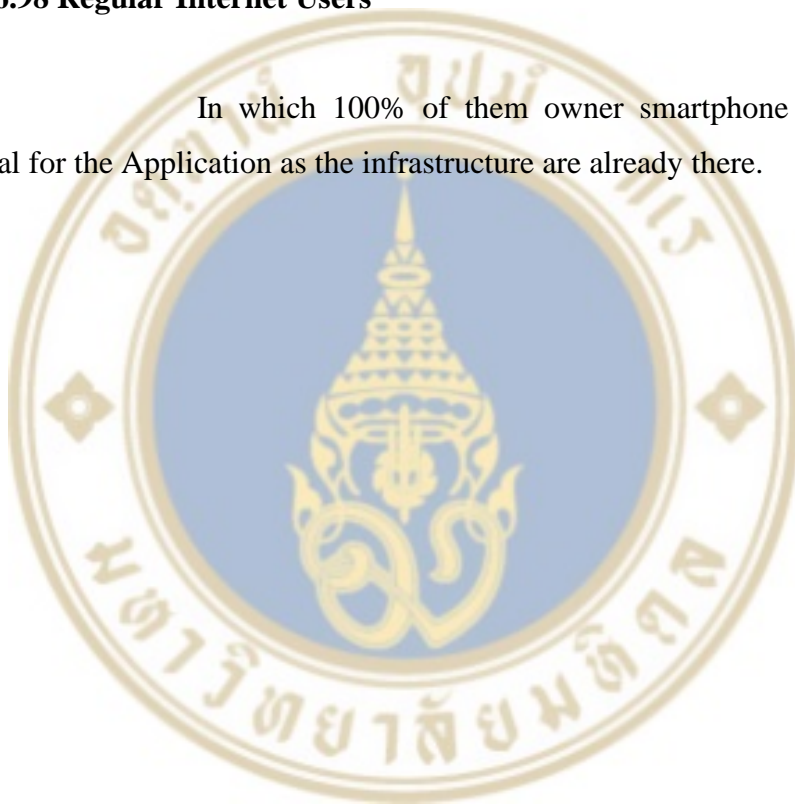
**Figure 6.97 Physical Care**

Based on the respondents, 98% of the nurses are regular internet users which suites what the Application requires as shown in Figure 6.98 Regular Internet Users.



**Figure 6.98 Regular Internet Users**

In which 100% of them own smartphone which becomes beneficial for the Application as the infrastructure are already there.

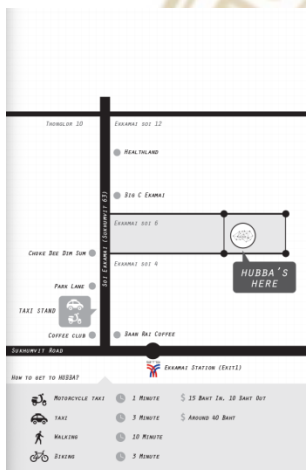


## Chapter VII

### Operational Plan

#### 7.1 Place

The office will be rented at downtown co-working space as shown in Figure 7.1 HUBBA Co-working Ekkamai. This co-working space resides at Ekkamai 4 Soi 19, Sukumvit 63, Prakanong Nua, Wattana, Bangkok. The location is suitable for business meeting as it is in walking distance from Ekkamai BTS Station.



**Figure 7.1 HUBBA Co-working Ekkamai**

At HUBBA co-working space, there are necessary facilities such as private office, team table, meeting room, and multifunction room, opening from 9am to 10pm daily.

## 7.2 People

The Application is crafted out from two main areas of expertise, nutrition for healthy living and software development, while the remaining areas are business administrative related expertise.

### 7.2.1 Software Development Expert

Our team consisted of a partner with expertise in software development that will further helps maintain and develop the Application based on customers and suppliers requirement.

Jamorn Horathi is a multidisciplinary iOS software engineer with experience in project management, user experience design, user interface design.

He specializes as a product manager, software project planning, and management & development.

He has considerable knowledge in Java, SQL, iOS which are necessary of android and iOS based mobile application.

His work experiences were deploying web-mail and web servers for TCC Group, project management for Standard Chartered Bank's personal financial management tool, project consultant for RSI Plus condominium construction project back office administrative software, technology consultant at WoofWoof Studio, Co-founder and software engineer at Beanstalk Studios, and later founder of Specter Research Institute Pte. Ltd. Located in Singapore, a software developer in web & mobile application.

He studied at Carnegie Mellon University in Information Systems and later studied at Singapore Management University in Management of Information Systems.

Please see Appendix M Jamorn Horathai for further detail.

### 7.2.2 Nutrition Expert

On the part of nutritional expert, the team has Dr. Somsri Charoenkiatkul, Deputy Director of Research at the Institute of Nutrition, Mahidol University (INMU) as our board consultant.

The Institute of Nutrition, Mahidol University is considered to be one of the leading nutrition institutions in Thailand.



Not only that, INMUCAL, the most complete nutrition database is also being developed and updated with the most recent research on food nutrition in Thailand by the INMU. Within the international arena, INMUCAL is the most trusted source of nutritional database in Thailand, even the Food and Agricultural Organization (FAO), a segment of the United Nation also based their nutritional field work on this database. Dr. Somsri Charoenkiatkul was also among the member researcher in association with the INMUCAL database software at the Institute.

Dr. Somsri Charoenkiatkul was a consultant for the Ministry of Public Health on nutrition, and has written countless of journal publications both on domestic level and international level, whereby receiving honorary and awards.

Dr. Somsri Charoenkiatkul is also professor of Nutrition at the College of Management, Mahidol University (CMMU).

Please see Appendix N Dr. Somsri Charoenkiatkul for further detail.

### **7.2.3 Hospital Network**

We have network with Arjarn Suphatra Moranon, nursing professor at Siriraj Hospital.

### **7.2.4 Permanent IT**

We will hire IT expert since the beginning of the first year in order to further develop the Application to consumers' preferences. We will hire one normal IT staff every year in order to keep pace with traffic.

### **7.2.5 Business Administration**

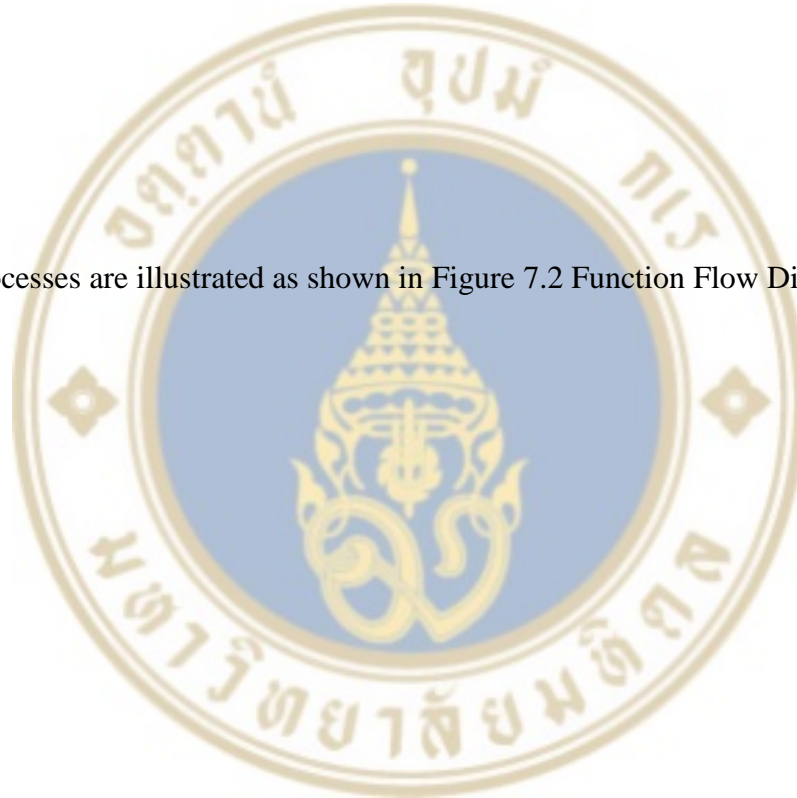
All business administrative work will be conducted by Mr. Thammathiti Prathomvarl, a co-founder, who has over ten years of experience in this field.

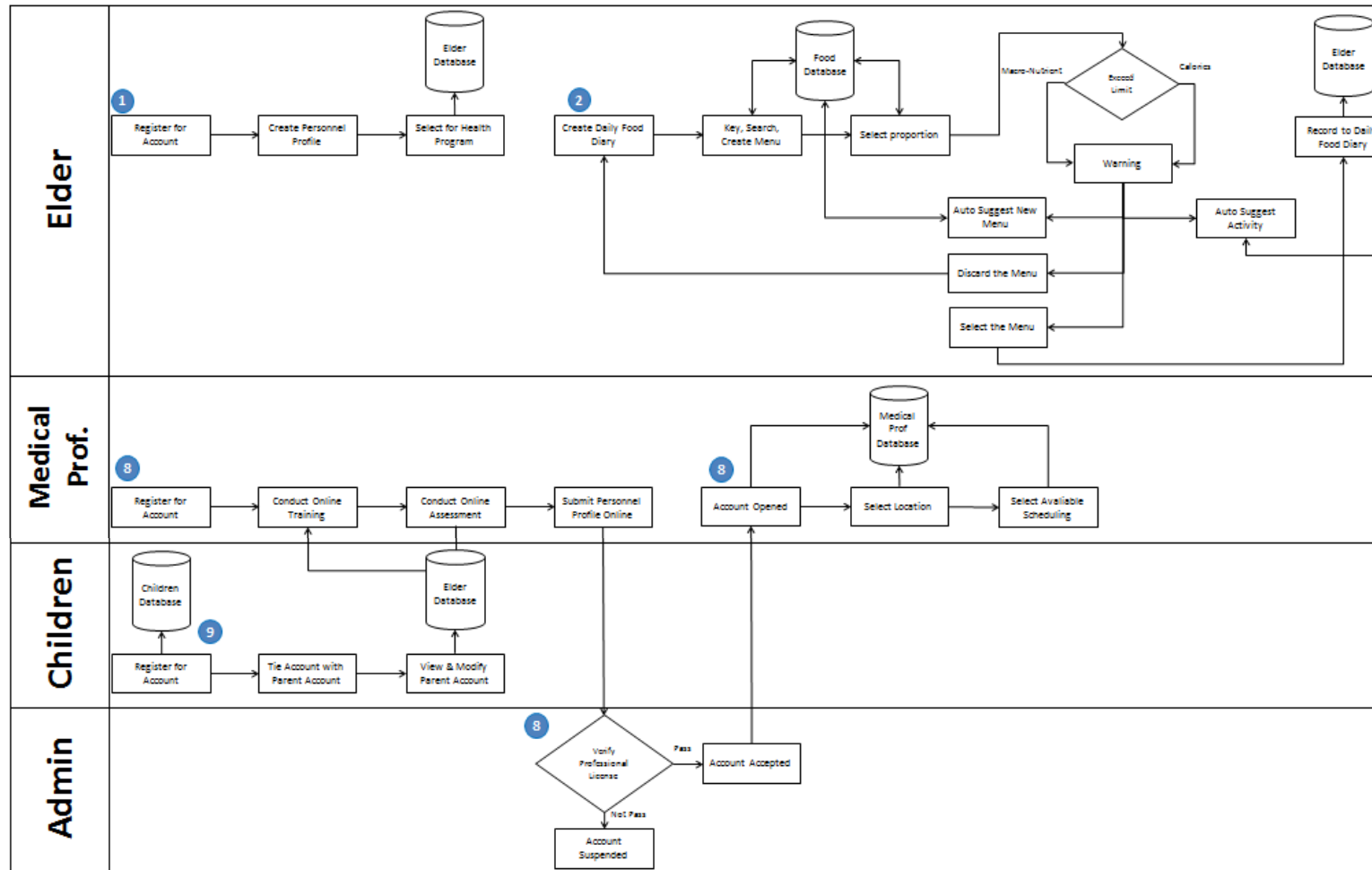
### 7.3 Physical Evidence

Although the Company provides services online, however, all tangible aspects must be kept professional including dress code when coming to outsourced office.

### 7.4 Process

The Application function processes are illustrated as shown in Figure 7.2 Function Flow Diagram.





**Figure 7.2 Function Flow Diagrams**

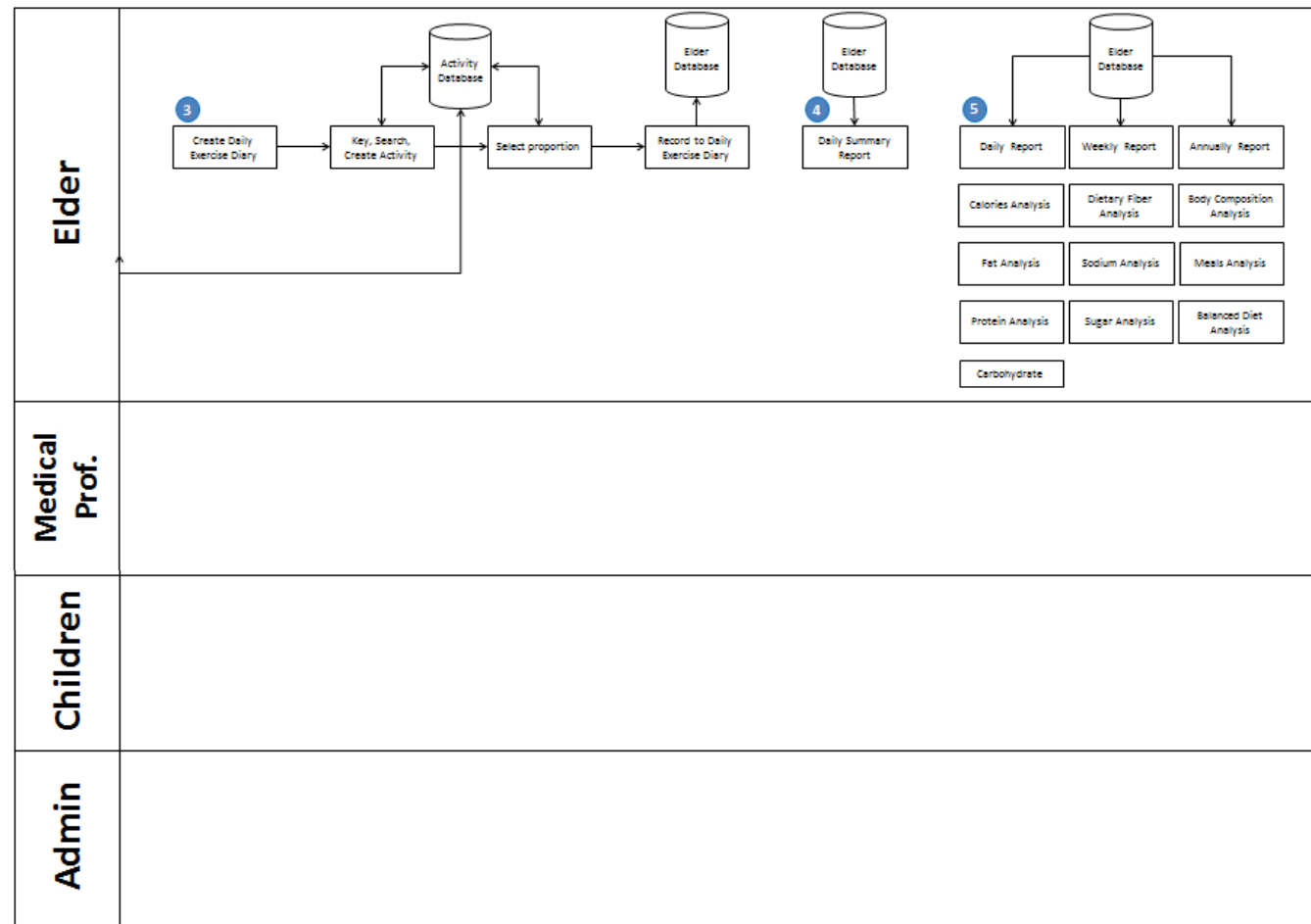


Figure 7.2 Function Flow Diagrams Cont.

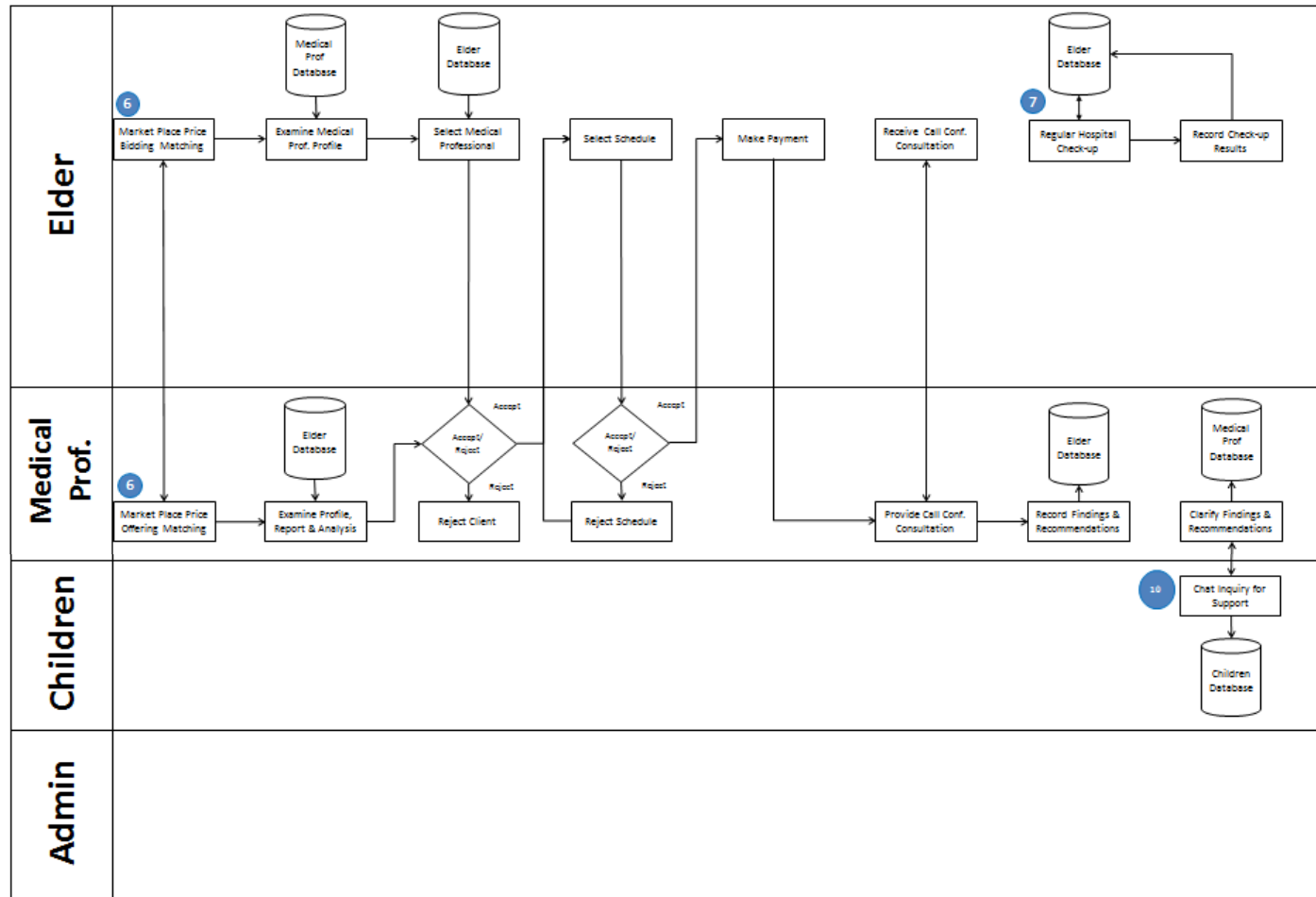
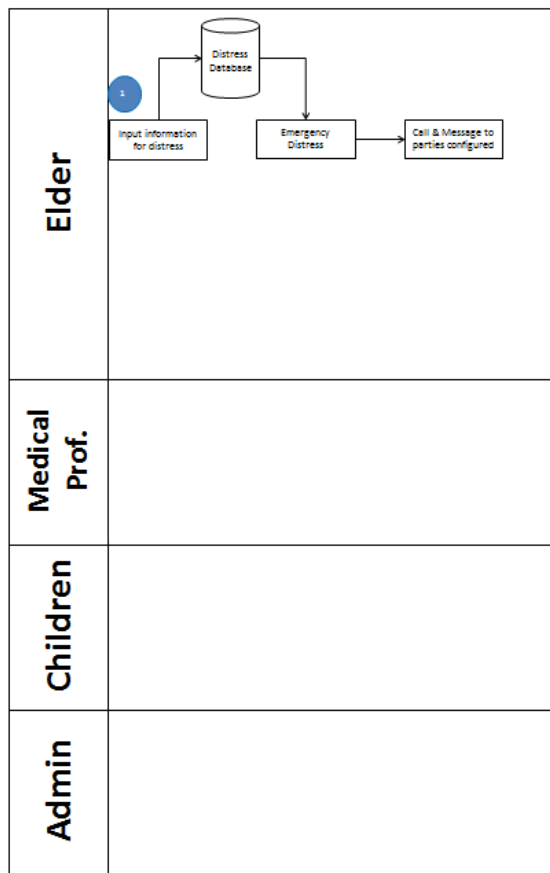


Figure 7.2 Function Flow Diagrams Cont.



**Figure 7.2 Function Flow Diagrams Cont.**





## CHAPTER VIII

### ORGANIZATIONAL STRUCTURE

#### 8.1 Shareholding Structure

The Company will be registered as Company Limited, having registered and paid up capital of Baht 1 million @ Baht 5 per shares, totaling of 200,000 shares.

The Company has 2 founders, Mr. Thammathiti Prathomvarl and Mr. Jamorn Ho.

Mr. Thammathiti Prathomvarl will contribute 76% of registered shares, while Mr. Jamorn Ho will contribute 24%.

This will ensures that one partner has the supermajority rights, in order to avoid any VETO rights that can be made in the boardroom as the Company only has 2 partners, so that decisions will be less complex.

Note that VETO rights occurred when one partner has at least 25% minimum shareholding structure. The Baht 5 per shares as goodwill for the other Partner to easily increase his shareholding structure if he wishes to in the future as shown in Table 8.1 Shareholding Structure.

**Table 8.1 Shareholding Structure**

	<b>Business Partner</b>	<b>IT Partner</b>	<b>Total</b>
Name	Thammathiti P.	Jamorn H.	
Share Capital (THB)	760,000	240,000	1,000,000
Share price (THB)	5	5	5
Shareholding (Shares)	152,000	48,000	200,000
Shareholding Structure (%)	76%	24%	100%
Share Rights	Super Majority	Minority no VETO	

## 8.2 Organizational Structure

The organizational structure for the first three years will be informal, having Mr. Jamorn Ho responsible for all IT related matters, while Mr. Thammathiti Prathomvarl responsible for all business administrative matters.



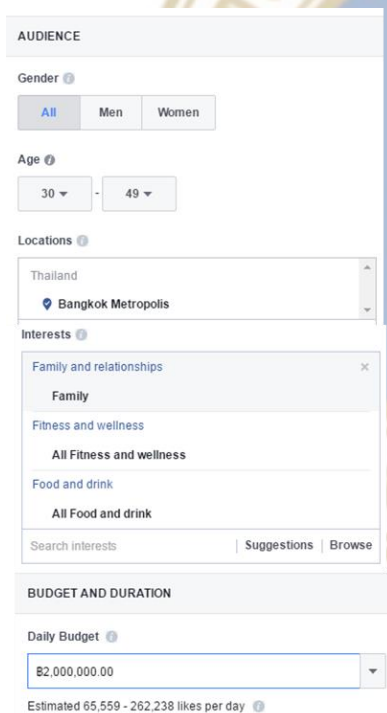
## CHAPTER IX

### FINANCIAL PLAN

#### 9.1 Financial Structure & Policy

##### 9.1.1 Social Commerce: Facebook Conversion Costs Rate

Facebook estimates Click to Like conversion costs<sup>51</sup> as shown in Figure 9.1 Click to Like Conversion Costs.



The screenshot shows the Facebook Audience targeting interface. The 'AUDIENCE' section includes filters for Gender (All, Men, Women), Age (30 to 49), and Locations (Thailand, Bangkok Metropolis). The 'Interests' section lists 'Family and relationships', 'Fitness and wellness', and 'Food and drink'. The 'BUDGET AND DURATION' section shows a 'Daily Budget' of ฿2,000,000.00. At the bottom, it states 'Estimated 65,559 - 262,238 likes per day'.

**Figure 9.1 Click to Like Conversion Costs**

Our target groups for advertisement are Generation X and some Generation Y, starting at the age of 30 till 49 based on our survey result in Appendix H Willingness to Pay. Notice that the estimated budget is at its maximum of Baht 2 million in order to receive the highest conversion costs possible.

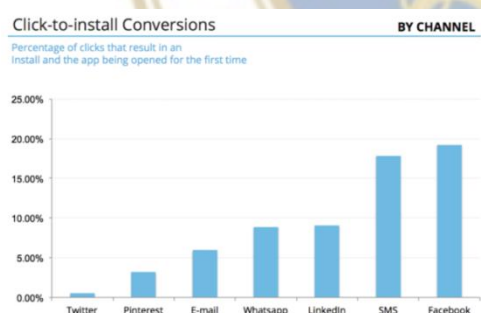
We have computed the conversion costs as shown in Table 9.1 FB Click to Like Conversion Costs.

**Table 9.1 FB Click to Like Conversion Costs**

Year	Low (THB)	High (THB)	Level
Year 1	29	31	Max
Year 2	12	12	Average
Year 3	8	8	Min

In our FB Conversion Costs, we have selected highest costs to be used in our financial model. We have estimated that as people received more exposure, they will Like and Share our social media advertisements to others (Social Referral), henceforth, reduced the conversion cost step by step.

However, not all who click like will install the Application. Therefore, we have obtained a research from a group of mobile application developer and venture capital for Facebook Click to Installation conversion cost rate as 18.50% of those who click like<sup>52</sup> as shown in Figure 9.2 Click to Install Conversion Rate.



**Figure 9.2 Click to Install Conversion Rate**

We have Freemium together with Free Trial in order to get our consumers to get used to the Application, not every elderly personal who installed the Application will use the Application permanently. Therefore, we have estimated using our survey in Appendix E Elders Purposive Homogeneous Survey conducted with elderly as shown in our Market Research that 83% are interested in using the Application, while the remaining 17% are likely to drop out.

We use the amount of people generated from Facebook advertisement in order to compute for our revenue generated.

### **9.1.2 Online Advertising: Google Online Display Ads Conversion**

#### **Costs Rate**

In order to motivate those who click like, but not yet installed during the Facebook advertisement, we will use Google Online Display Ads to motivate them further with online banner advertisement. We will use 10 frequency capping cost per miles (CPM) of 21 Baht per 1,000 views.

Furthermore, we will use Google Online Display Ads on potential consumers to click banner link to our website in order to take action. The amount of audience will be equivalent to those who dropped out. The cost per click (CPC) is 30 Baht per person.

CPC Thailand is 58% cheaper than those of CPC USA, in which CPC USA cost 53 THB per click, making CPC Thailand to be 30 Baht per click. CPM is 70% of CPC, making CPM Thailand to be 21 Baht per 1,000 views<sup>53</sup>.

### **9.1.3 Social Commerce: YouTube Ads Conversion Costs Rate**

In order to create the sense of urgency and motivate those who installed but not yet use to start using the Application, although we already have Freemium and Free Trial, however, we will further conduct YouTube Ads for view and impression. YouTube ads view and impression costs at the maximum of 53 THB per person<sup>54</sup>.

### **9.1.4 Free Trial**

We will contact with nurses associations for retired medical professionals to help support free trial consultation, therefore, there will be no direct cost in the free trial promotion period.

### **9.1.5 Customer Royalty Program: Dinner Vouchers**

Based from our survey conducted in Appendix G Sons Purposive Homogeneous Survey, most popular family activity is having a meal together.

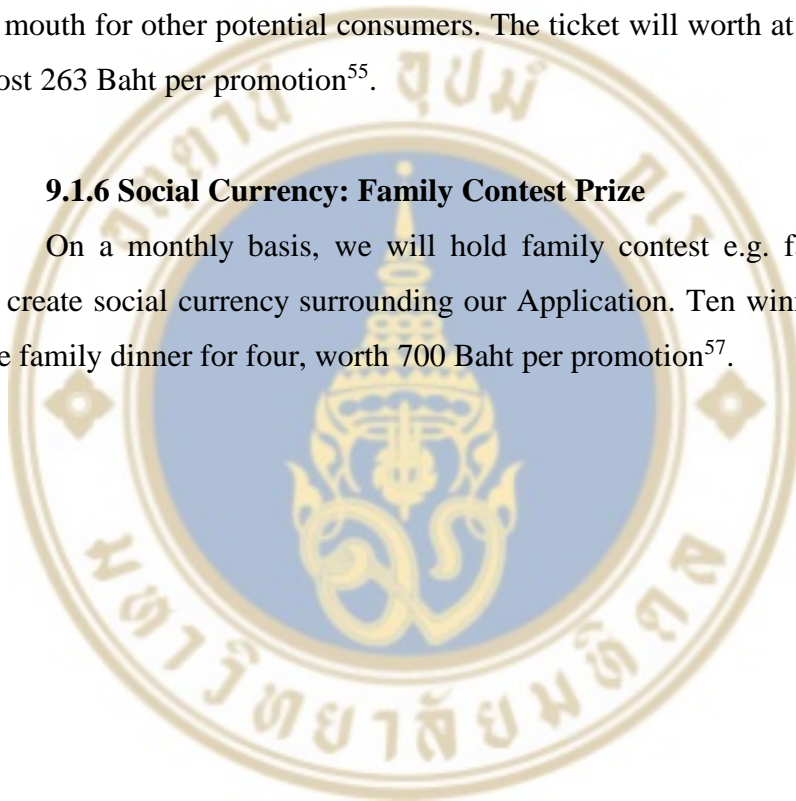
Therefore, in order to promote continuous purchase of consulting services, we will give out dinner vouchers to those who used the Application for 6 months continuation.

The first 6 months will be free dinner ticket for 1 and 50% discount for another. Therefore, in a family of 4 people, if both aged mother and father brought the service, then the entire family can enjoy this free meal promotion. The ticket will worth at 175 base prices, which cost 263 Baht per promotion<sup>55</sup>.

The second 6 months will be free dinner ticket for 1 and 50% discount for another. The ticket can only be used for people 50 years and upward, in order to create word of mouth for other potential consumers. The ticket will worth at 175 base prices, which cost 263 Baht per promotion<sup>55</sup>.

#### **9.1.6 Social Currency: Family Contest Prize**

On a monthly basis, we will hold family contest e.g. family picture in order to create social currency surrounding our Application. Ten winners will receive full prize family dinner for four, worth 700 Baht per promotion<sup>57</sup>.





### 9.1.7 Price per Call

Please find price per call estimation in Table 9.2 Price Estimation.

**Table 9.2 Price Estimation**

Ref.	Price Estimation Supply Side (Nurses):	Figures	Unit	Calculation	Source
Desired Working Hours from Supply Side:					
(A)	Desired working hrs. per month	91	hrs.	Given	Nurse Survey
(B)	Working days per month	30	days	Given	
(C)	Desired working hrs. per day	3	hrs.	(A) / (B)	
Desired Additional Income from Supply Side:					
(D)	Desired additional income per month	9,849	THB	Given	Nurse Survey
(E)	Desired additional income per day	328	THB	(D) / (B)	
(F)	Desired additional income per hour	108	THB	(E ) / (C)	
Price Estimation based on Supply Side:					
(G)	Approximate 1 conventional call = 30 min	1	min ratio	Given	(C ) / (G)
(H)	Estimated calls per day	6	calls		
(I)	Estimated price per call before commission	54	THB	(F) * (G)	(I)*(100%+(J))
(J)	Commission per call	30	%	Given	
(K)	Estimated price per call after commission	70	THB		

### **9.1.8 Number of Calls per Month**

Price decoy strategy will be in use to discourage consumers from purchasing single consulting service by inflating single purchase minimum price floor, in order for consumers to purchase a package of 4 calls, a monthly service type with normal minimum price floor.

### **9.1.9 Withholding Tax**

Withholding tax for services rendered will be deducted by 3% upon invoice.

### **9.1.10 VAT**

Value added tax at 7% upon invoice.

### **9.1.11 Corporate Income Tax**

Corporate income tax for net profit exceeding Baht 3 million is at 20% tax rate.

No tax credit is used in the computation for net loss.

### **9.1.12 Application Development Cost**

The Application development cost is 374,500 Baht as shown in Appendix O DEVT Application Development Quotation from DEVT Company Limited.

### **9.1.13 INMUCAL Database Cost**

The database cost amounts to 5,600 Baht. Please find Appendix P for interview with Dr. Khunchit J. and Appendix Q for interview with Dr. Orapin B.

### **9.1.14 Website Development Cost**

Based on our market survey we found website development cost of around 6,000 Baht, however, we estimated for 10,000 Baht<sup>56</sup>.

### 9.1.15 Software Amortization Cost

According to Tax Law, software must be fully amortized within 3 years.

### 9.1.16 Technician Recruitment

Based on our inquiry with the CEO of Konvy.com we found that expert IT technician cost around 40,000 Baht per month, while average IT technician will cost only 25,000 to 30,000 Baht per month.

Basic salary increase should be around 5,000 Baht with 1 month bonus guaranteed.

Below 100,000 customers, only need around 2 to 3 IT technician to operate the Company.

Based on our traffic for Year 3 still less than 100,000 customers, in total we have 4 IT personal as shown in Table 9.3 Technician Personal.

**Table 9.3 Technician Personal**

<b>Technician</b>	<b>Initial Salary per Month</b>
IT Partner	Profit Sharing
IT Expert	40,000
IT Staff	25,000
IT Staff	30,000

### 9.1.17 Office Rental

We will outsource our office to HUBBA yearly payment of 29,950 Baht per person. Please see operational plan for further detail.

### 9.1.18 Server Rental

Based on our inquiry with DEVT developer, server size depends on traffic. However, if below 100,000 customers just use 489 GB disk size at Microsoft Azure will be enough. We chose to increase cloud server size by one grade per year as shown in Table 9.4 Server Rental<sup>57</sup>.

**Table 9.4 Server Rental**

Package	RAM	Disk Size	Price (Baht per Year)
A2	3.5 GB	489 GB	50,694
A3	7 GB	999 GB	101,388
A4	14 GB	2,039 GB	202,776

#### 9.1.19 Media Clip Production

Based on our market survey for 5 minutes clip production cost around 30,000 Baht<sup>58</sup>. Therefore, for a 10 minutes clip will cost around 60,000 Baht.

We double the price to 120,000 Baht to account for any cost overrun.

#### 9.1.20 Event

Based on experience event cost around 45,000 Baht per bot rental.



### 9.1.21 Banner

Based on our market survey banner cost around 260 Baht per unit<sup>59</sup>.

Based on our inquiry with Deputy Director of the Hospital, the banner advertising package cost 12,500 Baht per month, for 8 banners costing 1,563 Baht per unit per month. Our advertisement schedule as shown in Table 9.5 Banner Advertisement.

**Table 9.5 Banner Advertisement**

Company	Symbol	Bed Cap (Units)	Banner (Units)	Ads Year	Banner (Baht)	Rental Costs (Per Year)
Srivichaivejvivat	VIH	200	8	Year 1	2,080	150,000
Ladprao General Hospital	LPH	200	8	Year 1	2,080	150,000
Thai Nakarin Hospital	TNK	190	8	Year 1	2,080	150,000
Chiang Mai Ram Medical Business	CMR	180	7	Year 1	1,820	131,250
Nonthavej Hospital	NTV	150	6	Year 1	1,560	112,500
Wattana Karnpaet	NEW	100	4	Year 2	1,040	75,000
Vibhavadi Medical Center	VIBHA	350	14	Year 2	3,640	262,500
Sikarin	SKR	335	13	Year 2	3,380	243,750
Ramkhamhaeng Hospital	RAM	300	12	Year 2	3,120	225,000
Aikchol Hospital	AHC	262	10	Year 2	2,600	187,500
Mahachai Hospital	M-CHAI	216	9	Year 2	2,340	168,750
Bumrungrad Hospital	BH	580	23	Year 3	5,980	431,250
Thonburi Medical Centre	KDH	505	20	Year 3	5,200	375,000
Chularat Hospital	CHG	414	17	Year 3	4,420	318,750

### 9.1.22 Credit Term

Our estimate for credit term is as shown in Table 9.6 Credit Term.

**Table 9.6 Credit Term**

<b>Transactions</b>	<b>Credit Term (days)</b>	<b>Note</b>
<b>Revenue:</b>		
Advanced Received	30	Package is 1 month, prepaid.
<b>Expenses:</b>		
<b>COGS:</b>		
Commission payables	45	Payment on the 15th of next month.
Salary payables	-3	Payment 3 days before month end.
Office rental payables	15	Payment on the 15th of next month.
<b>SG&amp;A:</b>		
Server rental payables	30	1 month normal credit term.
Bank charges	0	Upon transaction.
Advertisement payables	0	Upon transaction.
<b>FN:</b>		
Interest payables	15	Payment on the 15th of next month.
<b>Taxes:</b>		
Withholding tax payables	45	Based on tax law.
VAT payables	45	Based on tax law.
CIT payables	150	Based on tax law.
<b>Lump-sum:</b>		
Software payables	30	1 month normal credit term.
Media payables	-30	1 month advanced payment.



## 9.2 Revenue and Costs Estimation

Table 9.7 Revenue and Costs Estimation, were based from the assumptions disclosed.

**Table 9.7 Revenue and Costs Estimation**

		Year 1	Year 2	Year 3
Social Media Advertisement Cost		- 1,500,000	- 2,000,000	- 2,500,000
<b>FB Conversion Rates:</b>				
Click to Impression Year 1	31	49,169	-	-
Click to Impression Year 2	12	-	163,899	-
Click to Impression Year 3	8	-	-	327,798
Click to Installation	19%	9,096	30,321	60,643
Click to Use	83%	7,550	25,167	50,333
Drop Out	17%	1,283	4,278	8,557
Permanent Customers		6,266	20,888	41,777
Conversion Rate		0.42%	1.04%	1.67%
<b>Google Conversion Rates:</b>				
Cost per Miles (1000) with frequency capping 10	21	- 8,542	- 28,472	- 56,944
Cost per Click	30	- 39,082	- 130,275	- 260,550
<b>Total Google ads costs:</b>		- 47,624	- 158,747	- 317,494
<b>YouTube Conversion Rates:</b>				
Cost per View & Impression	53	- 81,185	- 224,612	- 449,225
<b>Customer Royalty Program:</b>				
Family Dinner Vouchers	263	- 822,471	- 3,564,059	- 8,224,773
Friends Dinner Vouchers	263	-	- 1,644,943	- 5,483,176
Family Contest Prize	700	- 84,000	- 84,000	- 84,000
<b>Total CRM Costs:</b>		- 906,471	- 5,293,002	- 13,791,949
<b>Quantity of Calls:</b>				
Accumulated Customers		6,266	27,155	68,931
Month Remaining		-	-	-
Average calls per month	4	162,928	843,885	2,389,620
Revenue for each batch customers	70	11,406,858	59,081,909	167,301,599

### 9.3 Profit & Loss Projection

Profit & Loss projection shows net loss for the first year, and positive thereafter as shown in Table 9.8 Forecasted Income Statement.

**Table 9.8 Forecasted Income Statements**

	<b>Year 1 Baht</b>	<b>Year 2 Baht</b>	<b>Year 3 Baht</b>
Sales	11,406,858	59,081,909	167,301,599
Cost of sales	(8,745,428)	(42,588,608)	(118,993,729)
<b>Gross profit</b>	2,661,430	16,493,301	48,307,870
Selling, General, Administrative Costs	(4,129,874)	(11,293,208)	(24,966,282)
<b>Profit for the year</b>	(1,468,444)	5,200,094	23,341,588
Finance costs	-	-	-
<b>Profit before income tax</b>	(1,468,444)	5,200,094	23,341,588
Income tax	-	(1,040,019)	(4,668,318)
<b>Net profit (loss) for the year</b>	<u>(1,468,444)</u>	<u>4,160,075</u>	<u>18,673,271</u>

## 9.4 Balance Sheet Projection

Balance sheet projection shows significant liquidity and well cash cycle management from prepayment policy as shown in Table 9.9 Forecasted Balance Sheet.

**Table 9.9 Forecasted Balance Sheet**

	<b>Year 1 Baht</b>	<b>Year 2 Baht</b>	<b>Year 3 Baht</b>
<b>Assets</b>			
<b>Current assets</b>			
Cash and cash equivalents	668,257	10,625,057	42,311,618
Account Receivables	-	-	-
<b>Total current assets</b>	<b>668,257</b>	<b>10,625,057</b>	<b>42,311,618</b>
<b>Non-current assets</b>			
Intangible assets, net	260,067	130,033	-
<b>Total non-current assets</b>	<b>260,067</b>	<b>130,033</b>	<b>-</b>
<b>Total assets</b>	<b>928,324</b>	<b>10,755,090</b>	<b>42,311,618</b>

**Table 9.9 Forecasted Balance Sheet Cont.**

	<b>Year 1 Baht</b>	<b>Year 2 Baht</b>	<b>Year 3 Baht</b>
<b>Liabilities</b>			
<b>Current liabilities</b>			
Account payables	1,228,431	5,323,226	13,512,827
Loan payables	-	-	-
Interest payables	-	-	-
Withholding tax payables	33,782	149,460	384,911
VAT payables	122,843	532,323	1,351,283
Accrued income tax	-	1,040,019	4,668,318
Other payables	11,712	18,432	29,377
Current portion of long-term debt, net	-	-	-
<b>Total current liabilities</b>	<b>1,396,768</b>	<b>7,063,459</b>	<b>19,946,716</b>
<b>Non-current liabilities</b>			
Non-current portion of long-term debt, net	-	-	-
<b>Total non-current liabilities</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Total liabilities</b>	<b>1,396,768</b>	<b>7,063,459</b>	<b>19,946,716</b>

**Table 9.9 Forecasted Balance Sheet Cont.**

	<b>Year 1 Baht</b>	<b>Year 2 Baht</b>	<b>Year 3 Baht</b>
<b>Equity and liabilities</b>			
Retained Earnings	(1,468,444)	2,691,631	21,364,902
Issued share capital (Baht 1 Million registered share capital, 200,000 ordinary shares at 5 Baht each)	1,000,000	1,000,000	1,000,000
<b>Total equity</b>	<b>(468,444)</b>	<b>3,691,631</b>	<b>22,364,902</b>
<b>Total equity and liabilities</b>	<b>928,324</b>	<b>10,755,090</b>	<b>42,311,618</b>

## 9.5 Changes in Shareholders' Equity Projection

As shown in Table 9.10 Forecasted Statements of Changes in Shareholders' Equity, although the Company incurred negative equity in the first year, however, due to its prepayment policy the Company was able to maintained positive cash-flow.

**Table 9.10 Forecasted Statements of Changes in Shareholders' Equity**

	Year 1 (Baht)		
	Issued and fully paid-up share capital		
	Ordinary shares	Legal reserve	Total
<b>Opening balance as at 31 Dec Year 1</b>	1,000,000	-	1,000,000
Net profit for the year	(1,395,022)	(73,422)	(1,468,444)
<b>Closing balance as at 31 Dec Year 1</b>	<u>(395,022)</u>	<u>(73,422)</u>	<u>(468,444)</u>



**Table 9.10 Forecasted Statements of Changes in Shareholders' Equity Cont.**

	Year 2 (Baht)		
	Issued and fully paid-up share capital		
	Ordinary shares	Legal reserve	Total
<b>Opening balance as at 31 Dec Year 2</b>	(468,444)	-	(468,444)
Net profit for the year	3,952,071	208,004	4,160,075
<b>Closing balance as at 31 Dec Year 2</b>	<u>3,483,627</u>	<u>208,004</u>	<u>3,691,631</u>

**Table 9.10 Forecasted Statements of Changes in Shareholders' Equity Cont.**

	Year 3 (Baht)		
	Issued and fully paid-up share capital		
	Ordinary shares	Legal reserve	Total
<b>Opening balance as at 31 Dec Year 3</b>	3,691,631	-	3,691,631
Net profit for the year	17,739,607	933,664	18,673,271
<b>Closing balance as at 31 Dec Year 3</b>	<u>21,431,238</u>	<u>933,664</u>	<u>22,364,902</u>

## 9.6 Cash-flow Projection

Despite the net loss for the first year, the Company still remains to have positive cash-flow all throughout the period as shown in Table 9.11 Forecasted Statement of Cash Flow. We have performed monthly cash-flow, all month remains in positive territory.

**Table 9.11 Forecasted Statement of Cash Flow**

	Year 1 Baht	Year 2 Baht	Year 3 Baht
<b>Cash flows from operating activities</b>			
Profit (loss) before income tax	(1,468,444)	5,200,094	23,341,588
Adjustments for:			
Amortization charge	130,033	130,033	130,033
	(1,338,411)	5,330,127	23,471,622
Changes in operating assets and liabilities			
Increase (decrease) in operating liabilities:			
- account payables	1,228,431	4,094,795	8,189,602
- interest payables	-	-	-
- withholding tax payables	33,782	115,678	235,451
- VAT payables	122,843	409,479	818,960
- Other payables	11,712	6,720	10,945
Cash receipts from operating activities before			
income tax paid	58,357	9,956,799	32,726,580
- Income tax paid	-	-	(1,040,019)
Net cash receipts (payments) from operating activities	58,357	9,956,799	31,686,561

**Table 9.11 Forecasted Statement of Cash Flow Cont.**

	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>
	<b>Baht</b>	<b>Baht</b>	<b>Baht</b>
<b>Cash flows from investing activities</b>			
Cash paid for purchases of intangible assets	(390,100)	-	-
Net cash payments from investing activities	(390,100)	-	-
<b>Cash flows from financing activities</b>			
Proceeds from additional paid-up share capital	1,000,000	-	-
Proceeds (repayments) from loan	-	-	-
Net cash receipts from financing activities	1,000,000	-	-
<b>Net increase (decrease) in cash and cash equivalents</b>	668,257	9,956,799	31,686,561
Cash and cash equivalents, opening balance	-	668,257	10,625,057
<b>Cash and cash equivalents, closing balance</b>	668,257	10,625,057	42,311,618

## 9.7 Monthly Cash-flow Projection

As a startup company, cash-flow management is the most vital in ensuring the continuity of the Company, especially in the first year. Despite the net loss for the first year, the Company still remains to have positive cash-flow all throughout the period as shown in Table 9.12 Monthly Cash-flow.

**Table 9.12 Monthly Cash-flow**

	Year 1 Month 1 Baht	Year 1 Month 2 Baht	Year 1 Month 3 Baht	Year 1 Month 4 Baht	Year 1 Month 5 Baht	Year 1 Month 6 Baht
<b>Cash Outflows:</b>						
<b>Lump Sum:</b>						
- Application Cost	374,100)	-	-	-	-	-
- Website Cost	(10,000)	-	-	-	-	-
- Inmucal Software Cost	6,000)	-	-	-	-	-
- Social Media Advertisement Clip	120,000)	-	-	-	-	-
- Training Clips	240,000)	-	-	-	-	-

**Table 9.12 Monthly Cash-flow Cont.**

	<b>Year 1 Month 1</b>	<b>Year 1 Month 2</b>	<b>Year 1 Month 3</b>	<b>Year 1 Month 4</b>	<b>Year 1 Month 5</b>	<b>Year 1 Month 6</b>
	<b>Baht</b>	<b>Baht</b>	<b>Baht</b>	<b>Baht</b>	<b>Baht</b>	<b>Baht</b>
<b>Recurring Monthly:</b>						
- Technician Expenses	(40,000)	(40,000)	(40,000)	(40,000)	(40,000)	(40,000)
- Office Rental	-	(7,488)	(7,488)	(7,488)	(7,488)	(7,488)
- Server Rental	-	(4,225)	(4,225)	(4,225)	(4,225)	(4,225)
<b>Variable Costs:</b>						
- Online Advertisement Costs	(135,734)	(135,734)	(135,734)	(135,734)	(135,734)	(135,734)
- Commission Expenses	-	(102,369)	(204,738)	(307,108)	(409,477)	(511,846)
- Transaction Costs	(5,850)	(11,699)	(17,549)	(23,399)	(29,248)	(35,098)
- Withholding Taxes	-	-	(3,071)	(6,142)	(9,213)	(12,284)
- VAT	-	(10,237)	(20,474)	(30,711)	(40,948)	(51,185)
- Offline Advertisement Costs	(67,433)	(57,813)	(57,813)	(57,813)	(57,813)	(102,813)
- Offline Promotional Costs	(7,000)	(7,000)	(7,000)	(7,000)	(7,000)	(7,000)
<b>Total Cash Outflows:</b>	<b>(1,006,116)</b>	<b>(376,564)</b>	<b>(498,091)</b>	<b>(619,618)</b>	<b>(741,145)</b>	<b>(907,672)</b>



**Table 9.12 Monthly Cash-flow Cont.**

	<b>Year 1 Month 1 Baht</b>	<b>Year 1 Month 2 Baht</b>	<b>Year 1 Month 3 Baht</b>	<b>Year 1 Month 4 Baht</b>	<b>Year 1 Month 5 Baht</b>	<b>Year 1 Month 6 Baht</b>
<b>Cash Inflows:</b>						
<b>Company Establishment:</b>						
- Proceeds from initial share capital	1,000,000	-	-	-	-	-
- Proceeds from loan	-	-	-	-	-	-
<b>Variable Inflow:</b>						
- Revenue	146,242	292,484	438,725	584,967	731,209	877,451
- Withholding Taxes	-	3,071	6,142	9,213	12,284	15,355
- VAT	10,237	20,474	30,711	40,948	51,185	61,422
<b>Total Cash Inflows:</b>	<u>1,156,479</u>	<u>316,028</u>	<u>475,578</u>	<u>635,128</u>	<u>794,678</u>	<u>954,228</u>
<b>Total Cash Flows for the period:</b>	<u>150,362</u>	<u>(60,536)</u>	<u>(22,513)</u>	<u>15,510</u>	<u>53,533</u>	<u>46,556</u>
<b>Accumulated Cash Flows:</b>		<u>89,827</u>	<u>67,314</u>	<u>82,824</u>	<u>136,357</u>	<u>182,913</u>

**Table 9.12 Monthly Cash-flow Cont.**

	Year 1 Month 7 Baht	Year 1 Month 8 Baht	Year 1 Month 9 Baht	Year 1 Month 10 Baht	Year 1 Month 11 Baht	Year 1 Month 12 Baht
<b>Cash Outflows:</b>						
<b>Lump Sum:</b>						
- Application Cost	-	-	-	-	-	-
- Website Cost	-	-	-	-	-	-
- Inmucal Software Cost	-	-	-	-	-	-
- Social Media Advertisement Clip	-	-	-	-	-	-
- Training Clips	-	-	-	-	-	-
<b>Recurring Monthly:</b>						
- Technician Expenses	(40,000)	(40,000)	(40,000)	(40,000)	(40,000)	(80,000)
- Office Rental	(7,488)	(7,488)	(7,488)	(7,488)	(7,488)	(7,488)
- Server Rental	(4,225)	(4,225)	(4,225)	(4,225)	(4,225)	(4,225)

**Table 9.12 Monthly Cash-flow Cont.**

	<b>Year 1 Month 7 Baht</b>	<b>Year 1 Month 8 Baht</b>	<b>Year 1 Month 9 Baht</b>	<b>Year 1 Month 10 Baht</b>	<b>Year 1 Month 11 Baht</b>	<b>Year 1 Month 12 Baht</b>
<b>Variable Costs:</b>						
- Online Advertisement Costs	(135,734)	(135,734)	(135,734)	(135,734)	(135,734)	(135,734)
- Commission Expenses	(614,215)	(716,585)	(818,954)	(921,323)	(1,023,692)	(1,126,062)
- Transaction Costs	(40,948)	(46,797)	(52,647)	(58,497)	(64,346)	(70,196)
- Withholding Taxes	(15,355)	(18,426)	(21,498)	(24,569)	(27,640)	(30,711)
- VAT	(61,422)	(71,658)	(81,895)	(92,132)	(102,369)	(112,606)
- Offline Advertisement Costs	(57,813)	(57,813)	(57,813)	(57,813)	(57,813)	(57,813)
- Offline Promotional Costs	(144,079)	(144,079)	(144,079)	(144,079)	(144,079)	(144,079)
<b>Total Cash Outflows:</b>	<b>(1,121,277)</b>	<b>(1,242,804)</b>	<b>(1,364,331)</b>	<b>(1,485,858)</b>	<b>(1,607,385)</b>	<b>(1,768,912)</b>

**Table 9.12 Monthly Cash-flow Cont.**

	<b>Year 1 Month 7 Baht</b>	<b>Year 1 Month 8 Baht</b>	<b>Year 1 Month 9 Baht</b>	<b>Year 1 Month 10 Baht</b>	<b>Year 1 Month 11 Baht</b>	<b>Year 1 Month 12 Baht</b>
<b>Cash Inflows:</b>						
<b>Company Establishment:</b>						
- Proceeds from initial share capital	-	-	-	-	-	-
- Proceeds from loan	-	-	-	-	-	-
<b>Variable Inflow:</b>						
- Revenue	1,023,692	1,169,934	1,316,176	1,462,418	1,608,660	1,754,901
- Withholding Taxes	18,426	21,498	24,569	27,640	30,711	33,782
- VAT	71,658	81,895	92,132	102,369	112,606	122,843
<b>Total Cash Inflows:</b>	<u>1,113,777</u>	<u>1,273,327</u>	<u>1,432,877</u>	<u>1,592,427</u>	<u>1,751,976</u>	<u>1,911,526</u>
<b>Total Cash Flows for the period:</b>	<u>(7,500)</u>	<u>30,523</u>	<u>68,546</u>	<u>106,569</u>	<u>144,592</u>	<u>142,614</u>
<b>Accumulated Cash Flows:</b>	<u>175,413</u>	<u>205,937</u>	<u>274,482</u>	<u>381,051</u>	<u>525,643</u>	<u>668,257</u>

## 9.8 Weighted Average Cost of Capital Projection

Beta measures systematic risk or market risk of a company by comparing its market price volatility with that of the market itself.

Therefore, Beta is a regression of the company's return against that of the market. Beta slope coefficient can be shown as below.

$$\Delta S_n = \beta_n * \Delta M + b + e$$

Whereby,

$\Delta S_n$  = Changes in Stock n price

$\beta_n$  = Beta of Stock n return

$\Delta M$  = Changes in market price

$b$  = X intercept

$e$  = Error term



The Company is in a medical industry of Thailand, henceforth, we can obtain Beta of all listed companies directly from a public site disclosed by the Stock Exchange of Thailand<sup>60</sup> as shown in Table 9.13 Beta from a Comparable Public Companies in the Medical Industry.

**Table 9.13 Betas from Comparable Public Companies in the Medical Industry**

Company	Symbol	Beta Leveraged	Debt (MB)	Equity (MB)	D/E	Weighted Equity	Weighted Beta
Bangkok Dusit Medical Services	BDMS	0.57	44,797	56,286	0.80	0.50	0.29
Bumrungrad Hospital	BH	1.01	8,531	13,678	0.62	0.12	0.12
Bangkok Chain Hospital	BCH	1.06	5,853	4,515	1.30	0.04	0.04
Vibhavadi Medical Center	VIBHA	0.65	4,563	5,546	0.82	0.05	0.03
Ramkhamhaeng Hospital	RAM	0.16	3,320	8,154	0.41	0.07	0.01
Chiang Mai Ram Medical Business	CMR	0.27	2,472	2,767	0.89	0.02	0.01
Chularat Hospital	CHG	0.86	716	3,122	0.23	0.03	0.02
Nonthavej Hospital	NTV	0.32	439	1,445	0.30	0.01	0.00
Sikarin	SKR	0.11	1,634	1,944	0.84	0.02	0.00
Mahachai Hospital	M-CHAI	1.00	1,441	1,225	1.18	0.01	0.01
Thai Nakarin Hospital	TNH	0.38	251	1,075	0.23	0.01	0.00
Aikchol Hospital	AHC	0.14	253	1,395	0.18	0.01	0.00
Srivichaivejvivat	VIH	0.95	514	949	0.54	0.01	0.01
Ladprao General Hospital	LPH	1.20	301	1,605	0.19	0.01	0.02
Thonburi Medical Centre	KDH	0.10	177	468	0.38	0.00	0.00
Wattana Karnpaet	NEW	0.87	145	321	0.45	0.00	0.00
Samitivej	SVH	0.11	2,635	7,174	0.37	0.06	0.01
<b>Total</b>		<b>0.57</b>	<b>78,042</b>	<b>111,671</b>	<b>0.70</b>	<b>1.00</b>	<b>0.59</b>



As beta of leveraged comparable companies within the stock market comes with different sizes, we therefore weight them to their size using their equity factor before proportionate their leveraged beta.

We assumed that individual beta of listed companies are being leveraged in some sort, however, our Company is an unleveraged firm, henceforth, we needed to unleveraged this beta. Therefore, the following beta is our unleveraged beta.

$$\beta_u = \frac{\beta_L}{1 + (1 - T) * \left(\frac{D}{E}\right)} = \frac{0.59}{1 + (1 - 0.20) * (0.70)} = 0.38$$

Whereby

$\beta_u$  = Beta of unleveraged firm

$\beta_L$  = Beta of leveraged firm

$T$  = Corporate tax rate

$D$  = Debt

$E$  = Equity

Notice that our tax rate is equivalent to listed companies tax rate due to our net profit exceeded Baht 3 million.

In order to find our leveraged beta we use the following transverse equation.

$$\beta_L = \beta_u * \left(1 + (1 - T) * \left(\frac{D}{E}\right)\right) = 0.38 * (1 + (1 - 0.2) * 0) = 0.38$$

$\beta_u = \beta_L$  is due to the fact that we cannot make loan during the first 3 years of startup based on bank policy.

In order to find an expected return we use capital asset pricing model, or known as CAPM as a way to find the relationship between systematic risks we found above, and the expected return we wish to find later.

$$re = B\partial(rm - rf) + rf = 0.38(0.30 - 0.0149) + 0.0149 = 0.12$$

Whereby

$re$  = Expected return of firm

$B\partial$  = Beta of firm

$rm$  = Expected return on market

$rf$  = Risk free rate

The expected return on the medical industry is found using industry average gross profit margin at 30%<sup>61</sup>.

The risk free rate was taken from Thai Government Bond 3 years till maturity at 1.49% yield<sup>62</sup>. As we are conducting 3 years financial projection, we therefore use 3 years bond maturity to match the period.

The weighted cost of capital (WACC) of a firm shows the firm's costs of obtaining those capital either it be in the form of debt or equity. As Thailand is interest tax deductible country, we therefore use Modigliani and Miller's Capital Structure Theory of Tax Shield in our WACC structure.

$$WACC = \frac{E}{V} * Re + \frac{D}{V} * Rd * (1 - T) = \frac{1}{1} * 0.12 + \frac{0}{1} * 0.10 * (1 - 0.20) = 0.12$$

Whereby

$E$  = Equity portion of the firm

$V$  = Value of the firm

$Re$  = Cost of equity

$D$  = Debt portion of the firm

$Rd$  = Cost of debt

$T$  = Corporate tax rate

The cost of debt is interest rate upon the loan by Kbank SME Loan at MRR +2.5%, having MRR at 7.62%, totaling to 10.12%<sup>63</sup>.

As the Company is entirely financed through equity, debt portion of the firm is zero.

Within a normal bell distribution, the standard deviation for both sides are 20%, therefore we can estimate our worst case and best case basing on our normal WACC figure as shown in Table 9.14 WACC Scenario.

**Table 9.14 WACC Scenario**

WACC Scenario	WACC
Normal	0.12
Best	0.10
Worse	0.15

## 9.9 Project Evaluation

Our operational net cash flow is as follow, Table 9.15 Net Cash-flow from Operation.

**Table 9.15 Net Cash-flow from Operation**

Net Cash-flow from Operation	Baht
CF0	- 1,006,116
CF1	58,357
CF2	9,956,799
CF3	31,686,561

Net present value (NPV) discounted the differences between cash inflows and cash outflows back to the present value as an indication that if resulted in positive present value then the project is a profitable investment.

$$NPV = \sum_{t=1}^T \left( \frac{C_t}{(1+r)^t} - C_0 \right)$$

Whereby

$T$  = number of periods

$C_t$  = net cash inflow during period  $T$

$r$  = discount rate (WACC)

$C_0$  = initial investment

Based on the equation we have computed the net present value of the project and concluded that all cases are positive as shown in Table 9.16 Net Present Value of the Project.

**Table 9.16 Net Present Value of the Project**

Scenario	WACC (%)	NPV (Baht)
Normal	0.12	29,307,991
Best	0.10	31,204,784
Worse	0.15	27,563,148

Basing on the net present value equation, the internal rate of return (IRR) seek for the rate of return when NPV is zero, in order to put all projects at the same base and compare them with rate of return. We have computed the internal rate of return exceeded the weighted cost of capital as shown in Table 9.17 Internal Rate of Return of the Project.

**Table 9.17 Internal Rate of Return of the Project**

Scenario	WACC	IRR	Variances
Normal	12%	320%	308%
Best	10%	320%	310%
Worse	15%	320%	305%

The payback period shows the amount of time it takes to recover the initial investment. We have computed the payback period as shown in Table 9.18 Payback Period of the Project.

**Table 9.18 Payback Period of the Project**

Net Cash-flow from Operation	Cash-flow (Baht)	Accumulated Cash-flow (Baht)
CF0	- 1,006,116	- 1,006,116
CF1	58,357	- 947,759
CF2	9,956,799	9,009,041
CF3	31,686,561	40,695,601

A payback period equals 1.10 years = (1+ ( 947,759 / 9,956,799 ))

## 9.10 Project Valuation

The value of a company is its summation of all its future free cash flow, discounted back to its present value, or known as Discounted Cash Flow (DCF) valuation method.

$$DCF = \frac{CF_1}{(1+r)^1} + \frac{CF_2}{(1+r)^2} + \dots + \frac{CF_n}{(1+r)^n}$$

Whereby

CF = Free Cash-flow

R = Discount rate (WACC)

CF<sub>n</sub> = Terminal Value

Terminal Value = CF final year (1 + Constant Growth Rate) / (R – Constant Growth Rate)

Note that as the Company only has intangible assets with no further preemptive significant capital investments, we assumed that the net operating cash-flow equals free cash-flow.

Our free cash-flow schedule is as shown in Table 9.19 Free Cash-flow Schedule.

**Table 9.19 Free Cash-flow Schedule**

Year	Free Cash-flow (Baht)	Growth
Year 1	58,357	-
Year 2	9,956,799	169.62
Year 3	31,686,561	2.18
Terminal Value	48,967,474	3.18

Terminal Value = (31,686,561 \* (1 + 2.18)) / (0.12 – 2.18) = 48,967,474

$$DCF = \frac{58,357}{(1 + 0.12)^1} + \frac{9,956,799}{(1 + 0.12)^2} + \frac{31,686,561}{(1 + 0.12)^3} + \frac{48,967,474}{(1 + 0.12)^3}$$

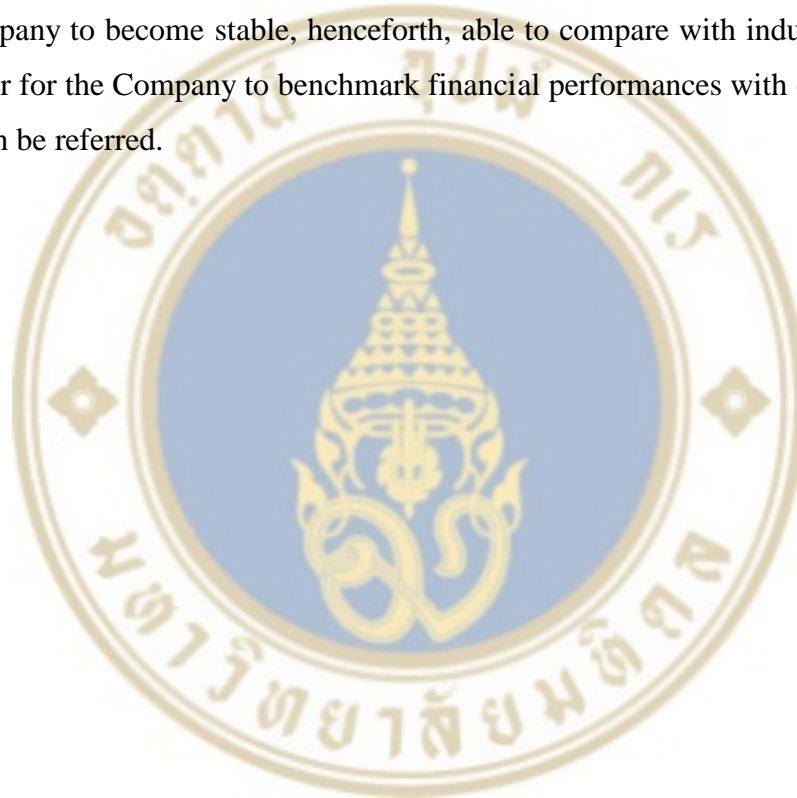
$$= 64,881,348$$

For every Baht 1 million invested for startup, the firms value amounts to Baht 64.88 million. (Amount contained rounding figures)



### 9.11 Financial Ratios Analysis

The first two years of the Company establishment are not comparable to the industry average due to the nature of its instability. It took 3 years until the Company to become stable, henceforth, able to compare with industry average. The purpose of these financial ratios analysis is simply in order for the Company to benchmark financial performances with others in order to see any areas that can be improve. No other implication can be referred.



### 9.11.1 Profitability Ratios

Overall the Company has higher profitability than those of the industry average<sup>59</sup>, except for EBIT Margin Du Pont, as the Company's SG&A is higher from heavily advertisement costs as shown in Table 9.20 Profitability Ratios. These costs are not being projected for the revenue return as a worst case scenario forecast.

**Table 9.20 Profitability Ratios**

		<b>Year 3</b>	<b>Industry Avg.</b>	<b>Variance</b>
Gross Profit Margin	(Revenue - COGS)/ Revenue	0.30	0.30	0.00
Return on Assets (ROA)	(EBIT/ Avg TA)	0.88	0.12	0.76
EBIT Margin Du Pont	(EBIT/ Sales)	0.14	0.16	- 0.02
Total Assets Turnover Du Pont	(Sales / Avg TA)	6.31	0.77	5.53
Return on Assets Du Pont	(EBIT Margin * TA Turnover)	0.88	0.12	0.76
Return on Equity (ROE)	(NI/ Avg TE)	1.43	0.14	1.30

### 9.11.2 Efficiency Ratios

Higher efficiency than industry<sup>59</sup> was due to lower assets through outsourcing, while better cash conversion cycle came from our revenue advanced payment policy as shown in Table 9.21 Efficiency Ratios.

**Table 9.21 Efficiency Ratios**

		Year 3	Industry Avg.	Variance
Total Assets Turnover (TA Turnover)	(Sales/ Avg TA)	6.31	0.77	5.53
Fixed Assets Turnover (FA Turnover)	(Sales/ Avg FA)	2,573.21	1.55	2,571.66
Inventory Turnover (Inv Turnover)	(COGS/ Avg Inv)	N/A	32.95	N/A
Inventory days Outstanding (Inv days)	(365/ Inv Turnover)	N/A	16.09	N/A
Account Receivables Turnover (AR Turnover)	(Sales/ Avg AR)	N/A	11.16	N/A
Account Receivables days Outstanding (AR days)	(365/ AR Turnover)	N/A	39.99	N/A
Account Payables Turnover (AP Turnover)	(Credit Purchase/ Avg AP)	12.63	10.27	2.36
Account Payables days Outstanding (AP days)	(365/ AP Turnover)	28.89	41.95	- 13.06
Cash Conversion Cycle (CCC)	(Inv days + AR days - AP days)	- 28.89	14.13	- 43.02

### 9.11.3 Liquidity Ratios

The Company is an unleveraged firm, with revenue advanced payment policy making the Company to be highly liquid than industry<sup>59</sup> as shown in Table 9.22 Liquidity Ratios.

**Table 9.22 Liquidity Ratios**

		<u>Year 3</u>	<u>Industry Avg.</u>	<u>Variance</u>
Current Ratio (CA)	(CA/ CL)	2.12	1.49	0.63
Quick Ratio	((Cash+Marketable+AR)/CL)	2.12	0.91	1.21

### 9.11.4 Debt Ratios

The Company is an unleveraged firm for the first 3 years.

## 9.12 Sensitivity Analysis

By changing the base assumption of Facebook acquisition costs from base case to worst case scenario, we found that this will not impact the continuity of the Company in the long-term as shown in Table 9.23 Sensitivity Analysis.

**Table 9.23 Sensitivity Analysis**

Scenarios	Initial Acquisition Costs	Acquired Customers (Persons)	Market Share	Net Profit (MB) Yr 1	Net Profit (MB) Yr 2	Net Profit (MB) Yr 3	C/F Yr 1	NPV	IRR	PBP (yrs)	DCF (MB)
Base Case	Yr1: 31 THB Yr2: 12 THB Yr3: 8 THB	68,931	53%	-1.47	4.16	18.67	+	+	> WACC	1.10	64.88
Worst Case	Yr1 - Yr3: 31 THB	25,066	20%	-1.47	0.91	5.75	+	+	> WACC	1.30	19.78
Best Case	Yr1 - Y3: 8 THB	100,264	77%	4.58	14.62	36.63	+	+	> WACC	0.10	149.15

## **CHAPTER X**

### **RISK MANAGEMENT**

#### **10.1 Market Risk**

Market risk or systematic risk is an external risk that affects the entire market. During the current economic situation in Thailand, we anticipated for even further economic slowdown.

In order to maintain revenue within the same revenue channel, we will increase customer royalty program through the use of social currency as a promotion to retain customers and expand our customer base. We will use more below the line marketing in order to reduce cost and increase its effectiveness.

Furthermore, we will expand our revenue channel to B2B, contacting directly with Vechaivej Hospital for supply of medical professionals, and their allocation of elderly customers into our platform.

#### **10.2 Financial & Liquidity Risk**

In case of having the risk of not meeting our financial budgeting, or even worse, heading into negative cash-flow, then we will request to issues additional share capital. Originally both partners are willing to put down Baht 1 million each, therefore, Mr. Thammathiti Prathomvarl still has 240,000 Baht and Mr. Jamorn Ho still has 760,000 Baht remaining.

#### **10.3 Credit Risk**

Within the first 3 years, we do not have any debt portion.



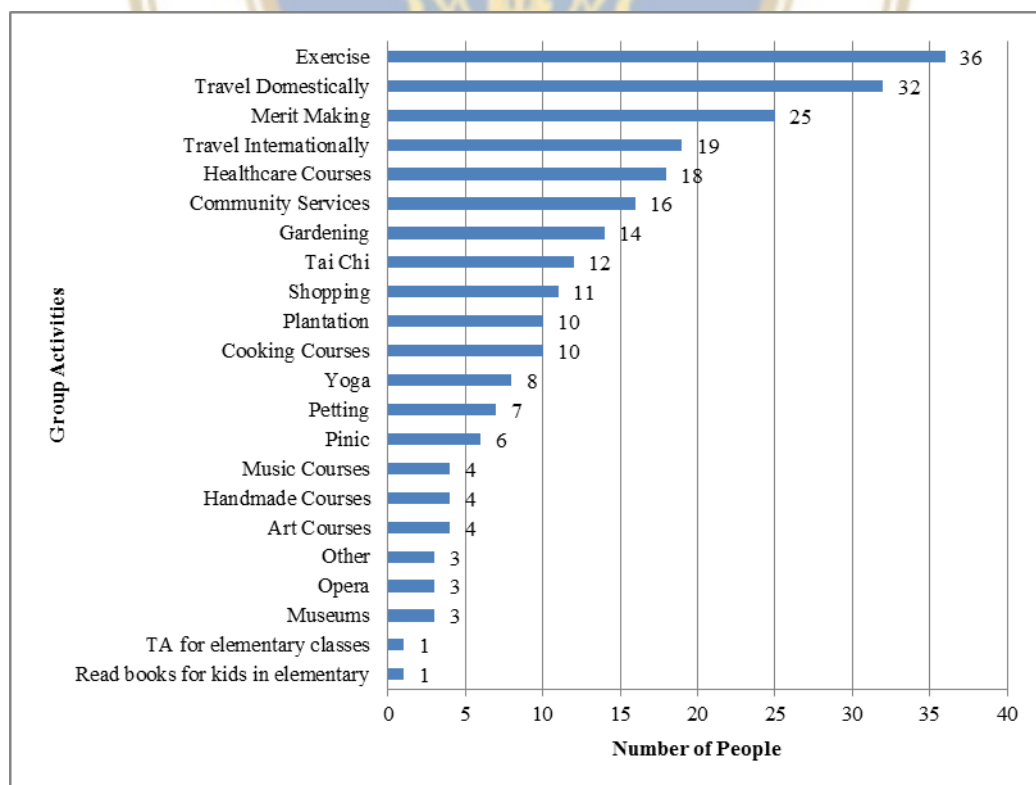
## 10.4 Operational Risk

The main operational risk is an under estimate of traffic within the Application, resulting in IT staff labor shortage. In case this happens, Mr. Jamorn Ho our IT Partner and founder of Specter Research Institute is willing to allocate additional IT staff from his side to support us in Thailand.

## 10.5 Strategic Risk

Strategic risk is the risk of not reaching the business objectives being planned.

Based from our survey conducted, we found that most elderly wishes to have a community within the Application. We will create this community in order to form network, bonds, and relationship so as people will feel the sense of attachment via using this Application. The community will consist of conducting activities together based on the result of our survey as shown in Figure 10.1 Activities.



**Figure 10.1 Activities**

Furthermore, based on our survey conducted with their son/ daughter we found that their children has high purchasing power and willingness to buy goods online for their parents as shown in Figure 6.76 Average Budget for Parent's Healthcare.

Therefore, we will further conduct an online market specializes in products for elderly such as one of the product we approached during Elderly Fair July 2016 as shown in Figure 10.2 Salt Meter for Hypertension or sensor socks that can track pace and heartbeat of Elderly in order for their children to know whether their parents are still fine as shown in Figure 10.3 Sensor Socks.



**Figure 10.2 Salt Meter for Hypertension**



**Figure 10.3 Sensor Socks**

Within this strategy being implemented, we will have an application that act as total solution for elderly having consultant, market place for purchase of specialized goods, and a community for doing activities together.

Furthermore, we will also consider of going aboard into South East Asian market having additional elderly citizens of approximately 75 million people e.g.

Malaysia in order to launch into Singapore. Therefore, we will register our Application for intellectual property in all ASEAN countries.

In summary, our marketing plan for risk mitigation is as shown in Figure 10.4 Ansoff for Revenue Channel Expansion.



**Figure 10.4 Ansoff for Revenue Channel Expansion**

## BIBLIOGRAPHY

- Asian Development Bank. (2010). *The Rise of Asia's Middle Class, 2010*.  
Retrieved from: [adb.org/sites/default/files/publication/27726/ki2010-special-chapter.pdf](http://adb.org/sites/default/files/publication/27726/ki2010-special-chapter.pdf)<sup>44</sup>
- Asian Development Bank. (2016). *Thailand and ADB*.  
Retrieved from: [adb.org/countries/thailand/main](http://adb.org/countries/thailand/main)<sup>21</sup>
- Asian Food Information Center. (2008). *Report on Food Labeling 2008*.  
Retrieved from India Environment Portal website:  
<http://admin.indiaenvironmentportal.org.in/files/Consumer-perceptionsIndia.pdf><sup>33</sup>
- Bank of Thailand. (2016). *Foreign Direct Investment Classified by Country (US\$) 1/2/ EC\_XT\_057*.  
Retrieved from:  
[2.bot.or.th/statistics/BOTWEBSTAT.aspx?reportID=654&language=ENG](http://2.bot.or.th/statistics/BOTWEBSTAT.aspx?reportID=654&language=ENG)<sup>24</sup>
- Bank of Thailand. (2016). *Thailand's Macro Economic Indicators 1/ EC\_EI\_027*.  
Retrieved from:  
[2.bot.or.th/statistics/ReportPage.aspx?reportID=409&language=eng](http://2.bot.or.th/statistics/ReportPage.aspx?reportID=409&language=eng)<sup>26</sup>
- Bank of Thailand. (2016). *Total Value and Quantity of Exports Classified by Product Group (US\$) EC\_XT\_009\_S2*.  
Retrieved from:  
[2.bot.or.th/statistics/BOTWEBSTAT.aspx?reportID=748&language=ENG](http://2.bot.or.th/statistics/BOTWEBSTAT.aspx?reportID=748&language=ENG)<sup>25</sup>
- Bill Siwicki. (2014, March 10). *Mobile commerce will be nearly half of e-commerce by 2018*. Retrieved from Internet Retailer website:  
[internetretailer.com/2014/03/10/mobile-commerce-will-be-nearly-half-e-commerce-2018](http://internetretailer.com/2014/03/10/mobile-commerce-will-be-nearly-half-e-commerce-2018)<sup>4</sup>
- Bureau Budget. (2016). *Thailand's Budget in Brief Fiscal Year 2016*.  
Retrieved from: [bb.go.th/budget\\_book/e-Book2559](http://bb.go.th/budget_book/e-Book2559)<sup>37</sup>
- Burim Otakanon. (2012, October 5). *Thai Facebook Users Consumer Behaviors*.

- Retrieved from IT Nake website: [itdnake.com/news/facebook.html](http://itdnake.com/news/facebook.html)<sup>29</sup>
- Centers for Medicare & Medicaid Services. (2014, September). *NHE Fact Sheet*. Retrieved from: [www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/NHE-Fact-Sheet.html](http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/NHE-Fact-Sheet.html)<sup>16</sup>
- Central Intelligence Agency. (2016). *Thailand Demographic*. Retrieved from: <https://www.cia.gov/library/publications/the-world-factbook/geos/th.html><sup>46</sup>
- Central Intelligence Agency. (2016). *The World Factbook: Thailand*. Retrieved from: [cia.gov/library/publications/the-world-factbook/geos/th.html](http://cia.gov/library/publications/the-world-factbook/geos/th.html)<sup>31</sup>
- Commonwealth Fund. (2013, November). *Health Affairs Web First*. Retrieved from: [commonwealthfund.org/~media/Files/Publications/In%20the%20Literature/2013/Nov/PDF\\_Schoen\\_2013\\_IHP\\_survey\\_chartpack\\_final.pdf](http://commonwealthfund.org/~media/Files/Publications/In%20the%20Literature/2013/Nov/PDF_Schoen_2013_IHP_survey_chartpack_final.pdf)<sup>16</sup>
- Denise Amrich. (2013, March 31). *Healthcare analytics market to exceed \$10bn by 2017*. Retrieved from ZDNet website: [www.zdnet.com/healthcare-analytics-market-to-exceed-10bby-2017-7000013322](http://www.zdnet.com/healthcare-analytics-market-to-exceed-10bby-2017-7000013322)<sup>19</sup>
- Electronic Transactions Development Agency. (2014). *Statistics e-transactions*. Retrieved from: [etda.or.th/content/etda-iup-2014.html](http://etda.or.th/content/etda-iup-2014.html)<sup>28</sup>
- Electronic Transactions Development Agency. (2015). *Thailand Internet User Profile 2015*. Retrieved from: <https://www.etda.or.th/publishing-detail/thailand-internet-user-profile-2015-eng.html><sup>48</sup>
- Electronic Transactions Development Agency. (2016). *Thailand E-transactions Statistics Report*. Retrieved from: [etda.or.th/content/e-transactions-statistics-report.html](http://etda.or.th/content/e-transactions-statistics-report.html)<sup>30</sup>
- Ericsson. (2014, June). *Ericsson Mobility Report: On the Pulse of the Networked Society*. Retrieved from: [ericsson.com/mobility-report](http://ericsson.com/mobility-report)<sup>3</sup>
- EY and Skolkovo Institute for Emerging Market Studies. (2013). *Hitting the Sweet Spot: The Growth of the Middle Class in Emerging Markets*.



Retrieved from:

ey.com/Publication/vwLUAssets/Hitting\_the\_sweet\_spot/%24FILE/Hitting\_the\_sweet\_spot.pdf<sup>11</sup>

EY Global. (2015). *Megatrends 2015 Making Sense of a World in Motion*.

Retrieved from: ey.com/GL/en/Issues/Business-environment/ey-megatrends-that-will-shape-our-future<sup>1</sup>

Facebook. (2016). *CTI*. Retrieved from: <http://www.facebook.com><sup>51</sup>

Forbes Thailand. (2016). *Launch of KBTG*.

Retrieved from: [forbesthailand.com/article\\_detail.php?article\\_id=887](http://forbesthailand.com/article_detail.php?article_id=887)<sup>41</sup>

Harvard School of Public Health and World Economic Forum. (2011, September).

*The Global Economic Burden of Non-communicable Diseases*.

Retrieved from:

[http://www3.weforum.org/docs/WEF\\_Harvard\\_HE\\_GlobalEconomicBurdenNonCommunicableDiseases\\_2011.pdf](http://www3.weforum.org/docs/WEF_Harvard_HE_GlobalEconomicBurdenNonCommunicableDiseases_2011.pdf)<sup>15</sup>

Health Information System Development Office. (2016). *Health Info*.

Retrieved from: [hiso.or.th](http://hiso.or.th)<sup>34</sup>

Healthcare IT News. (2013, October). *Care customization: applying big data to clinical analytics and life sciences*.

Retrieved from: [healthcareitnews.com/resource/care-customization-applying-big-data-clinical-analytics-life-sciences](http://healthcareitnews.com/resource/care-customization-applying-big-data-clinical-analytics-life-sciences)<sup>20</sup>

HIT Consultant. (2014, September). *Infiniti Research Limited report*.

Retrieved from EY Global website: ey.com/Publication/vwLUAssets/EY-health-reimagined/%24FILE/EY-health-reimagined.pdf<sup>18</sup>

International Food Information Council Foundation. (2009). *A Focus on Food Safety Food & Health Survey 2009*.

Retrieved from Food Insight Organization website:

[foodinsight.org/2009\\_Food\\_Health\\_Survey\\_Consumer\\_Attitudes\\_toward\\_Food\\_Nutrition\\_and\\_Health](http://foodinsight.org/2009_Food_Health_Survey_Consumer_Attitudes_toward_Food_Nutrition_and_Health)<sup>32</sup>

Joakim Ström. (2014, December 3). *Universum: How Millennials View Themselves and Their Status*. Retrieved from:

[universumglobal.com/articles/2014/12/millennials-view-status](http://universumglobal.com/articles/2014/12/millennials-view-status)<sup>6</sup>

José Ernesto Amorós and Niels Bosma. (2014). *Global Entrepreneurship Monitor*:



*2013 Global Report*. Babson College, Universidad del Desarrollo, and Universiti Tun Abdul Razak<sup>7</sup>

Kamayani Bali-Mahabal. (2014, April 9). *Health Workers Central to Improved Health Outcomes in India*.

Retrieved from Global Health through Education, Training and Service website: [ghets.org/2014/04/health-workers-centralimproved-health-outcomes-india](http://ghets.org/2014/04/health-workers-centralimproved-health-outcomes-india)<sup>16</sup>

Kasikorn Bank. (2016). *K-SME Long-term Loans*.

Retrieved from:

<http://www.kasikornbank.com/EN/SME/KSMEProduct/Pages/KSMELongTermLoans.aspx><sup>63</sup>

Medium Corporation. (2015). *Click To Install Conversions*.

Retrieved from: <https://medium.com/mobile-growth/we-analyzed-12-million-app-links-to-find-out-what-drives-the-best-click-to-install-conversion-5bc15f93d4be#.qny575gxo><sup>52</sup>

Microfinance Gateway. (2014, November). *Microfinance Market Outlook 2015: Growth driven by vast market potential*.

Retrieved from:

[responsability.com/funding/data/docs/es/10427/Microfinance-Market-Outlook-2015-DE.pdf](http://responsability.com/funding/data/docs/es/10427/Microfinance-Market-Outlook-2015-DE.pdf)<sup>9</sup>

Microsoft Azure. (2016). *Pricing Cloud Services*.

Retrieved from: <https://azure.microsoft.com/en-us/pricing/details/cloud-services/><sup>57</sup>

Ministry of Public Health. (1998). *Thai Recommended Daily Intake 2541*.

Retrieved from: <http://food.fda.moph.go.th/Rules/dataRules/4-4-2ThaiRDI.pdf><sup>49</sup>

MobiForge. (2014, September 19). *Mobile Web has now overtaken PC in 40 nations, including India, Nigeria and Bangladesh*.

Retrieved from: [mobiforge.com/news-comment/mobile-web-has-now-overtakenpc-40-nations-including-india-nigeria-and-bangladesh](http://mobiforge.com/news-comment/mobile-web-has-now-overtakenpc-40-nations-including-india-nigeria-and-bangladesh)<sup>2</sup>

National Economic and Social Development Board. (2015). *Quarterly Gross Domestic Product Chain Volume Measures: Q4/2015*.

- Retrieved from: [nesdb.go.th/nesdb\\_en/more\\_news.php?cid=155](http://nesdb.go.th/nesdb_en/more_news.php?cid=155)<sup>23</sup>
- National Electronics and Computer Technology Center. (2015, October 8).  
*SocialStat*. Retrieved from:  
[social.nesdb.go.th/SocialStat/StatReport\\_Final.aspx?reportid=669&template=2R1C&yeartype=M&subcatid=59](http://social.nesdb.go.th/SocialStat/StatReport_Final.aspx?reportid=669&template=2R1C&yeartype=M&subcatid=59)<sup>45</sup>
- National Electronics and Computer Technology Center. (2016). *Health Statistics*.  
 Retrieved from:  
[social.nesdb.go.th/SocialStat/StatSubDefault\\_Final.aspx?catid=3](http://social.nesdb.go.th/SocialStat/StatSubDefault_Final.aspx?catid=3)<sup>35</sup>
- National Electronics and Computer Technology Center. (2016). *Internet users' statistics domestic connection*.  
 Retrieved from:  
[internet.nectec.or.th/webstats/internetuser.iir?Sec=internetuser](http://internet.nectec.or.th/webstats/internetuser.iir?Sec=internetuser)<sup>27</sup>
- Oxford Economics. (2014). *Future Trends and Market Opportunities in the World's Largest 750 Cities*.  
 Retrieved from: [oxfordeconomics.com/Media/Default/landing-pages/cities/OE-cities-summary.pdf](http://oxfordeconomics.com/Media/Default/landing-pages/cities/OE-cities-summary.pdf)<sup>12</sup>
- Revenue Department. (2015, November 6). *Corporate Income Tax*.  
 Retrieved from: [rd.go.th/publish/6044.0.html](http://rd.go.th/publish/6044.0.html)<sup>38</sup>
- Robert J. Szczerba. (2014, July 16). *Why Mobile Health Technologies Haven't Taken Off (Yet)*.  
 Retrieved from Forbes website:  
[www.forbes.com/sites/robertszczerba/2014/07/16/whymobile-health-technologies-havent-taken-off-yet](http://www.forbes.com/sites/robertszczerba/2014/07/16/whymobile-health-technologies-havent-taken-off-yet)<sup>17</sup>
- Seeker Print. (2016). *X-Banner*.  
 Retrieved from: <http://www.seekerprint.com/x-stand.php><sup>59</sup>
- Siam VIP. (2016). *Website Developer*. Retrieved from <http://www.siamvip.com/><sup>56</sup>
- Sizzler. (2016). *Sizzler Lunch Special*.  
 Retrieved from: [http://www.sizzler.co.th/th/press\\_lunch\\_special.php](http://www.sizzler.co.th/th/press_lunch_special.php)<sup>55</sup>
- SP Ecommerce. (2016). *E-commerce*.  
 Retrieved from: <http://www.specommerce.com/solutions/performance-marketing/><sup>50</sup>
- Standard Chartered. (2013, November). *The super-cycle lives: emerging markets*

*growth is key.*

Retrieved from: [www.sc.com/en/news-and-media/news/global/2013-11-06-super-cycle-EM-growth-is-key.html](http://www.sc.com/en/news-and-media/news/global/2013-11-06-super-cycle-EM-growth-is-key.html)<sup>10</sup>

Stock Exchange Commission. (2015). *Company Profile*.

Retrieved from: <http://www.sec.or.th><sup>61</sup>

Stock Exchange of Thailand. (2016). *Financial Highlights*.

Retrieved from: <http://www.set.or.th><sup>60</sup>

StudioFun Film. (2016). *Film*.

Retrieved from: <https://www.facebook.com/notes/studiofun-film/><sup>58</sup>

Tata Consultancy Services. (2013). *Perspectives: TCS Consulting Journal, Vol. 05:*

*The Digital Enterprise: A Framework for Transformation*. Retrieved from: [tcs.com/SiteCollectionDocuments/Perspectives/The-Digital-Enterprise-Vol-5-1013-1.pdf](http://tcs.com/SiteCollectionDocuments/Perspectives/The-Digital-Enterprise-Vol-5-1013-1.pdf)<sup>5</sup>

Tech Sauce. (2016). *SCB Venture Capital*.

Retrieved from: [techsauce.co/news/scb-venture-capital-jo-thana-fund-manager/](http://techsauce.co/news/scb-venture-capital-jo-thana-fund-manager/)<sup>40</sup>

Tech Sauce. (2016, March 22). *Good News for Small and Medium Enterprises in Form of Tax Incentives for Venture Capital in Technological Related SMEs*.

Retrieved from: [techsauce.co/en/news-en/good-news-for-small-and-medium-enterprises-in-form-of-tax-incentives-for-venture-capital-in-technological-related-smes/](http://techsauce.co/en/news-en/good-news-for-small-and-medium-enterprises-in-form-of-tax-incentives-for-venture-capital-in-technological-related-smes/)<sup>39</sup>

Thai Bond Market Association. (2016). *Government Bond Yield Curve*,

Retrieved from:

<http://www.thaibma.or.th/EN/Market/YieldCurve/Government.aspx><sup>62</sup>

The New York Times. (2016, March 23). *We're More Honest With our Phones Than With Our Doctors*.

Retrieved from: [nytimes.com/2016/03/27/magazine/were-more-honest-with-our-phones-than-with-our-doctors.html?\\_r=0](http://nytimes.com/2016/03/27/magazine/were-more-honest-with-our-phones-than-with-our-doctors.html?_r=0)<sup>36</sup>

The World Bank. (2013). *Crowdfunding's Potential for the Developing World*.

Retrieved from:

[worldbank.org/curated/en/409841468327411701/Crowdfundings-potential-for-the-developing-world](http://worldbank.org/curated/en/409841468327411701/Crowdfundings-potential-for-the-developing-world)<sup>8</sup>

The World Bank. (2015, October). *Thailand Overview*.

Retrieved from: [worldbank.org/en/country/thailand/overview](http://worldbank.org/en/country/thailand/overview)<sup>22</sup>

The World Bank. (2016). *Health Care Expenditure to GDP %*.

Retrieved from: [data.worldbank.org/indicator/SH.XPD.TOTL.ZS](http://data.worldbank.org/indicator/SH.XPD.TOTL.ZS)<sup>43</sup>

UN Water. (2014). *The United Nations World Water Development Report 2014: Water and Energy — Volume 1*.

Retrieved from: [unwater.org/publications/world-water-development-report/en/](http://unwater.org/publications/world-water-development-report/en/)<sup>13</sup>

Wikipedia. (2016, March 3). *Thailand Provinces Rank by Population*.

Retrieved from: [th.wikipedia.org/wiki/](http://th.wikipedia.org/wiki/)<sup>47</sup>

Word Stream Blog. (2015). *Average Cost per Click by Country*.

Retrieved from <http://www.wordstream.com/blog/ws/2015/07/06/average-cost-per-click><sup>53</sup>

World Economic Forum. (2014). *Global Risks 2014: Ninth Edition*.

Retrieved from: <http://reports.weforum.org/global-risks-2014/><sup>14</sup>

World Health Organization. (2015). *World Health Statistics 2015*.

Retrieved from: [who.int/gho/publications/world\\_health\\_statistics/2015/en/](http://who.int/gho/publications/world_health_statistics/2015/en/)<sup>42</sup>

YouTube. (2015). *YouTube Advertising Cost*.

Retrieved from: [https://www.youtube.com/watch?v=-Y\\_utstcvKg](https://www.youtube.com/watch?v=-Y_utstcvKg)<sup>54</sup>





## APPENDIX A: Concept Design Interview with Elderly

### Interview Elderly User for Concept Design

**Date:** 7:45 Tuesday 6 September 2016

**Name:** Anuchit Worawanicha (02-8002380 ext. 314)

**Age:** 83

All the comments have been considered within the Application.

#### Minutes of Interview:

Comments for changes after product screen presentation:

- Do not add smiley faces, or any pictures in to replace words. Words are good. The more pictures, icon, etc. the more confusing senior people get.
- The text size in this application is big enough to see.
- The color is also bright and clear.

#### Screen 6: Functions

- Should have factsheet on important hotline call centers in Thailand in case on emergency.
- Should have factsheet to educate the user on how to convert from nutrition language to dietitian language.
- Should have factsheet to educate the user on other diet and exercise facts. These facts must come from well-known trustable source.
- The son/daughter should also be able to key in information for the parents, and should be equally knowledgeable.



#### Screen 7: Health Program

- Should also put the name of the diseases in there, so the user know right away which one to choose from rather than saying reduce salt, fat, and sugar.

#### Screen 11: Food Database

- Should add where the database came from in order to increase trust on these research data.

#### Screen 21: Auto Suggest

- The auto suggests should be able to filter for all macro-nutrients, not just one element.

#### Screen 31: Report Analysis

- Should be able to click in to see which menu was eaten that cause the over limit.

#### Screen 37: Body Composition

- These pictures are too small to see, if it can be magnified than there's no problem.

#### Screen 40: Market Place

- There should be filter for nurse specialty.

#### Screen 53: Medical Record

- Can there be threshold for each medical test?
- Can there be an education for these tests as well?

## APPENDIX B: Concept Design Interview with Son

### Interview Son for Concept Design

**Date:** 1:00 pm Saturday 10 September 2016

**Name:** Sanjay Popli

**Age:** 30

**Education:**

- Bachelor of Business Information System, Monash University
- Master of Business Administration, Thammasat University

**Work Experiences:**

- Professor at Thammasat University
- Associate Director at S.Kunshore Textiles Limited
- Formerly IT Coordinator at Homespace Limited

**Father Age:** 62

All the comments have been considered within the Application.

**Minutes of Interview:**

- The functions within this application is sufficient enough, no need to put anymore functions in.
- All the technical details of how the application should look like or being developed will be the job of the out sourced developer, not the management. The management should have an overview concept of how the application should be like, but not in detail.
- Since you also have a Partner in IT and hiring IT staff, the technical design is the job of those technicians, not the management.

- Everything in the big picture looks fine.
- One suggestion is to put the Fact Sheet health tip in the loading screen, and if they are more interested they can follow into the home screen.



## **APPENDIX C: Concept Design Interview with Medical Professional**

### **Interview Medical Professional for Concept Design**

**Date:** 22:00 pm Thursday 8 September 2016

**Name:** Ms. Supathra Moranon

**Position:** Department Head, Professor of Nursing Unit at Siriraj Hospital

**Age:** 64

**Name:** Suparak Dunaithorn

**Position:** OPD

**Age:** 42

All the comments have been considered within the Application.

#### **Minutes of Interview:**

- Like in other applications, there should be disclaimer for all related parties
- Everything else looks fine

## **APPENDIX D: Elders Qualitative Interview**

**Date:** 12:00 Thursday 28 April 2016

**Name:** Anuchit Worawanicha

**Age:** 83

**Status:** Living alone with his wife

**Minutes of Interview:**

### **How well do you know about staying healthy once you get older and older?**

Once I got older, I started to take better care of my health because I started to realize how fragile the human body really is, and basically wanted to live longer. Nowadays, there are lots of health tips online to read about staying healthy. But got to admit it, as time passes by, the body will never get younger. I exercise in the morning and try to eat fruit and vegetable, but most often we just buy food at the food stall because we cannot go to the supermarket that often anymore. During the day we watch TV and read books. We occasionally go travel together with the association. It's more of changing the environment for reading. And also hang out with friends of the same age because no one knows us better than people at the same age as us. I like to have a community like this, and go travel together every now and then. My joints are now very bad, we cannot walk a lot like when we were young, so most of the time our travels just end up sitting on sofa gazing at the mountain, sipping tea and talk to each other.

### **Would you like to hire nurse to help support you at home?**

Currently we don't want to have any nurse to help us, as long as we can still look after ourselves. We love to stay together in this house that we helped to build, so now it is out of the question that we move to an elderly home. But one day when we cannot look after ourselves, then maybe hiring a nurse to help us out will be

an option. Maybe if one day we cannot walk and take care of ourselves, we might have to move to elderly home. Now we spent most of the time on the first floor, rather than having to walk up and down the stairs. We already brought an elderly home, but we prefer to stay home rather.

**What are some of the illnesses you started to have once you get older?**

We both have problem with high blood pressure. Last time my wife fainted, and thanks you for your mother and brother coming to help us. Without your mother coming to our aid, I wouldn't have known how to do basic treatment before arriving at the hospital. I didn't know that if people have high blood pressure, when they feel dizzy they were supposed to hang their head upward, while low blood pressure to dangle their head downward. If she didn't get immediate treatment like that, her blood vessel may have broken and situation may become much worse.

**Are you interested in the idea of having mobile application that target especially for elderly people in preventing or maintaining non-communicable diseases such as stroke, high blood pressure, heart disease, and diabetes, and have nurses to call in to consult you at your scheduled time?**

Absolutely, I like this idea because as long as I can still look after myself, I very much want privacy to be able to live together with my wife in this house. However, in another aspect, we are growing older and older, so having someone to help monitor us from time to time will be great. However, although we both have smartphone, we don't know how to use them that well like the younger kids, so the application has to be simple for us to use. Nothing so complicated.

**Are there any functions you would like the application to have in addition to the core functions?**

It's very hard for me nowadays to go buy food from the grocery everyday like we used to. I want to eat lots of fresh fruits and vegetable, but it's not like we want to leave home to the supermarket. So if you can have nutritional application, then order good nutritional food online. That will be great, so you don't have to go help us buy food every month like this.



Also last time when my wife fainted from sudden spike in blood pressure, I started to know that I'm not knowledgeable enough when emergency occurs. The application should have emergency dial to the nurse that looks after us, because she will know well what kind of diseases we have, and can immediately give us general advice, and dial to the hospital nearby for immediate pick up.

**How often would you like to consult with the nurse?**

It depends, if there's an emergency, we want to make sure that we can ask someone for immediate advice. But in normal cases, maybe once or twice per month just to check on us whether we are on the right track or not.

**How much are you willing to pay for monitoring and consultation on basic health issues with the nurse?**

Maybe around 500 – 1,000 THB, but everybody will have different prices in mind. However, the charge should be lower than going to the hospital. Every time I go to the hospital, it cost no less than 1,000 THB just for simple talk.

**Would you like to do activities with community within the application? How often and how much?**

I would love to get to talk to new people. We travel once every 3 months, around 10K per trip. But depending on the trip as well, now we usually don't travel far anymore. However, this will also depend from person to person.

## APPENDIX E: Elders Purposive Homogeneous Survey



### การจัดทำแผนธุรกิจคณะกรรมการธุรกิจอาหารมหาวิทยาลัยมหิดล

#### คำชี้แจง

แบบสอบถามชุดนี้เป็นงานวิจัยเพื่อศึกษาความต้องการของผู้บริโภคในการใช้

Application มือถือเพื่อสุขภาพที่สามารถแนะนำการกินอาหารที่ถูกหลักโภชนาการให้แก่ผู้สูงอายุ และนำข้อมูลมาประเมินความเสี่ยงของโรคที่ไม่ติดต่อ และให้พยาบาลให้คำแนะนำโดยตรงเพื่อเปลี่ยนพฤติกรรมผู้บริโภค เพื่อประกอบการเรียนวิชานิพนธ์ ของนักศึกษาระดับชั้นปริญญาโท วิทยาลัยการจัดการ มหาวิทยาลัยมหิดล

ผู้วิจัยใคร่ขอความอนุเคราะห์และความร่วมมือในการตอบแบบสอบถามจากท่านผู้ตอบแบบสอบถาม โปรดให้ข้อมูลในการตอบแบบสอบถามให้ครบทุกคำถาม ผู้วิจัยขอรับรองว่าข้อมูลที่ท่านให้ถือเป็นความลับและจะนำเสนอผลการวิเคราะห์ในภาพรวมเท่านั้น

## สำหรับคุณพ่อคุณแม่

**คำชี้แจง** กรุณาทำเครื่องหมาย ✓ ลงในช่อง ( ) ที่ท่านเลือกเพียงคำตอบเดียว นอกจากจะกำหนดไว้เป็นอย่างอื่น

### 1. เพศ

1. ( ) หญิง

2. ( ) ชาย

### 2. อายุ (ปัจจุบัน)

1. ( ) 50 – 54 ปี

2. ( ) 55 – 59 ปี

3. ( ) 60 – 62 ปี

4. ( ) 63 – 65 ปี

5. ( ) 66 – 70 ปี

6. ( ) 71 – 75 ปี

7. ( ) 76 – 80 ปี

8. ( ) 81 – 85 ปี



### 3. รายได้เฉลี่ย/ เดือน (ก่อนเกษียณ)

- |                               |                               |
|-------------------------------|-------------------------------|
| 1. ( ) ไม่เกิน 10,000 บาท     | 2. ( ) 10,001 – 20,000 บาท    |
| 3. ( ) 20,001 – 30,000 บาท    | 4. ( ) 30,001 – 40,000 บาท    |
| 5. ( ) 40,001 – 50,000 บาท    | 6. ( ) 50,001 – 60,000 บาท    |
| 7. ( ) 60,001 – 70,000 บาท    | 8. ( ) 70,001 – 80,000 บาท    |
| 9. ( ) 80,001 – 90,000 บาท    | 10. ( ) 90,001 – 100,000 บาท  |
| 11. ( ) 100,001 – 150,000 บาท | 12. ( ) 150,001 – 200,000 บาท |
| 13. ( ) มากกว่า 200,000 บาท   |                               |

### 4. ท่านมี กิจกรรมอะไรบ้างที่ทำอยู่ (หลังเกษียณอายุ)

.....

.....

.....

5. ท่านมีความรู้สึก ชอบ/ไม่ชอบ อะไรบ้าง (หลังจากที่เกษียณ) – ตอบได้มากกว่าหนึ่งคำตอบ

- |   |                                    |
|---|------------------------------------|
| 1. ( ) สบายใจ                             | 2. ( ) เหนามีเพื่อนและสังคมน้อยลง  |
| 3. ( ) ดีใจที่ไม่ต้องไปทำงานประจำอีกแล้ว  | 4. ( ) เบื่อที่มีเวลาว่างมากเกินไป |
| 5. ( ) มีความยืดหยุ่นในการใช้ชีวิตมากขึ้น | 6. ( ) มีกิจกรรมทำน้อยลง           |
| 7. ( ) ชอบเข้าร่วมกิจกรรมให้ความบันเทิง   | 8. ( ) รู้สึกซึมเศร้า              |
- มากขึ้น
- |   |   |
|---|---|
| 9. ( ) ชอบทำกิจกรรมเพื่อสังคมมากขึ้น        | 10. ( ) หดความกระตือรือร้น                |
| 11. ( ) ชอบเรียนรู้อะไรใหม่ๆที่ไม่เคยมีเวลา | 12. ( ) อยากมีคุณค่าเหมือนตอนที่ทำงานอยู่ |
- ทำ
- |   |   |
|---|---|
| 13. ( ) ชอบทำความสะอาดบ้านให้สะอาด      | 14. ( ) เครียดเรื่องการเงินที่มีจำกัด   |
| 15. ( ) ได้ออกกำลังกายมากขึ้น           | 16. ( ) กลัวเรื่องสุขภาพที่คาดเดาไม่ได้ |
| 17. ( ) ชอบไปกินข้าวกับเพื่อนๆ          |   |
| 18. ( ) มีความสัมพันธ์กับครอบครัวดีขึ้น |   |
| 19. ( ) มีเวลาเลี้ยงหลาน                | 20. ( ) อื่นๆ.....                      |
- .....

6. ท่านมีคนดูแลท่าน ในยามสูงอายุหรือไม่?

- |              |           |
|--------------|-----------|
| 1. ( ) ไม่มี | 2. ( ) มี |
|--------------|-----------|

7. ท่านมีความรู้ที่จะป้องกันตัวเองจากโรคที่ตามมาด้วยอายุที่สูงขึ้นหรือไม่?

1. ( ) ไม่รู้เลย      2. ( ) ไม่ค่อยรู้      3. ( ) พอรู้บ้าง      4. ( ) รู้      5. ( ) รู้ดีอย่างมาก

8. ถ้ามี Application บนมือถือที่สามารถมีพยาบาลคอยให้คำแนะนำแก่ท่านในการกิน, ออกกำลังกาย, และอื่นๆ เพื่อเป็นการป้องกันโรคและเป็นการช่วยดูแลสุขภาพของท่านไปในตัว ท่านมีความต้องการที่จะใช้ Application ดูแลในลักษณะนี้หรือไม่?

1. ( ) อยาก      2. ( ) ไม่อยาก

9. ท่านมีงบประมาณสำหรับดูแลสุขภาพตัวเองเฉลี่ย/ เดือนอยู่ที่เท่าไร?

1. ( ) ไม่เกิน 3,000 บาท      2. ( ) 3,001 – 5,000 บาท  
 3. ( ) 5,001 – 7,000 บาท      4. ( ) 7,001 – 9,000 บาท  
 5. ( ) 9,001 – 10,000 บาท      6. ( ) 10,001 – 12,000 บาท  
 7. ( ) 12,001 – 14,000 บาท      8. ( ) 14,001 – 16,000 บาท  
 9. ( ) 16,001 – 18,000 บาท      10. ( ) 18,001 – 20,000 บาท  
 11. ( ) มากกว่า 20,000 บาท

10. ในยามว่างท่านสนใจที่จะออกไปร่วมทำกิจกรรมกับเพื่อนๆที่อยู่ในวัยเดียวกันกับท่านหรือไม่?

1. ( ) สนใจ      2. ( ) ไม่สนใจ



11. ท่านสนใจที่จะทำกิจกรรมอะไรบ้างกับเพื่อนๆที่อยู่ในวัยเดียวกัน? – ตอบได้มากกว่าหนึ่งคำตอบ

- |                                      |  |
|--------------------------------------|--|
| 1. ( ) ไปเที่ยวต่างประเทศ            | 2. ( ) ไปเที่ยวในประเทศ                    |
| 3. ( ) ไปเที่ยวพิพิธภัณฑ์            | 4. ( ) เรียนทำอาหาร                        |
| 5. ( ) เรียนวาดรูป                   | 6. ( ) เรียนศิลปะหัตถกรรมต่างๆ             |
| 7. ( ) เรียนเล่นดนตรี                | 8. ( ) ไปดูละคร                            |
| 9. ( ) ไปปิกนิก                      | 10. ( ) ไปเดินช้อปปิ้ง                     |
| 11. ( ) อ่านหนังสือให้เด็กๆอนุบาลฟัง | 12. ( ) สอนประสบการณ์ให้แก่เด็กๆในโรงเรียน |
| 13. ( ) ปลูกผักสวนครัว               | 14. ( ) ปลูกต้นไม้/ ปลูกป่า                |
| 15. ( ) ไปเล่นกับสัตว์เลี้ยงน่ารัก   | 16. ( ) ออกกำลังกายในสวนสาธารณะ            |
| 17. ( ) เรียนออกกำลังกายแบบโยคะ      | 18. ( ) เรียนออกกำลังกายแบบไทเก๊ก          |
| 19. ( ) เข้าอบรมการดูแลสุขภาพ        | 20. ( ) เข้าวัด ฟังธรรม นั่งสมาธิ          |
| 21. ( ) ทำกิจกรรมเพื่อสังคมต่างๆ     | 22. ( ) อื่นๆ.....                         |

**12. ท่านมีงบประมาณสำหรับการทำกิจกรรมต่างๆเฉลี่ย/ เดือนอยู่ที่เท่าไร?**

- |                            |                             |
|----------------------------|-----------------------------|
| 1. ( ) ไม่เกิน 3,000 บาท   | 2. ( ) 3,001 – 5,000 บาท    |
| 3. ( ) 5,001 – 7,000 บาท   | 4. ( ) 7,001 – 9,000 บาท    |
| 5. ( ) 9,001 – 10,000 บาท  | 6. ( ) 10,001 – 12,000 บาท  |
| 7. ( ) 12,001 – 14,000 บาท | 8. ( ) 14,001 – 16,000 บาท  |
| 9. ( ) 16,001 – 18,000 บาท | 10. ( ) 18,001 – 20,000 บาท |
| 11. ( ) มากกว่า 20,000 บาท |                             |

**13. ท่านใช้ อินเทอร์เน็ตในชีวิตประจำวันของท่านหรือไม่?**

- |            |               |
|------------|---------------|
| 1. ( ) ใช่ | 2. ( ) ไม่ใช่ |
|------------|---------------|

**14. ท่านมีมือถือที่เชื่อมต่ออินเทอร์เน็ตหรือไม่?**

- |           |              |
|-----------|--------------|
| 1. ( ) มี | 2. ( ) ไม่มี |
|-----------|--------------|

ขอบพระคุณในความร่วมมือ

## **APPENDIX F: Son Qualitative Interview**

### **Qualitative for Son**

**Date:** 14:16 Saturday 30 April 2016

**Name:** Tawan Thamasonthorn

**Age:** 30

**Parent Age:** 62 & 61

**Minutes of Interview:**

#### **How much time do you spend with your parents who are now retired?**

I studied abroad and worked abroad quite often, so I hardly get to see my parents when I was young. After my parents retired, I came back to Thailand a year back, because in some sense, I'm still worried about them. But who knew that life in Thailand is so hectic. I end up having to leave very early in the morning and come home late at night. Some week I have to go for field work, so I ended up not being together with my parents, even after they were retired, and I'm already back in Thailand. If you mean spending quality time with my family, I'll say on weekdays, hardly any. On weekend, maybe half the times I get to stay home. We usually just watch TV, cook, and talk to each other in the kitchen, or go out for dinner.

#### **When you are not home, who looks after your parent?**

My dad and I live together, while my mum stays at the factory with her grandpa. My dad stays home most of the time, while I head off to work.

**Does your dad have any illnesses?**

He has high blood pressure, taking his pills consistently. He also has cataract, going to get his surgery soon. I'm worried when I leave my dad at home alone. In case if he fell ill suddenly, I wouldn't know how to take care of him. Not to mention when I'm away, having no one at home. He still insisted that he's still good to go. But something like this, it's very hard to say when it will happen. I'm not in the medical field or anything like that, so I have no idea how to take care of him.

**Will you be interested if there's a mobile application that helps prevent or maintain non-communicable diseases such as stroke, high blood pressure, diabetes, through the use of nutrition control and exercise, having a nurse to call up for consultation based on your scheduled time? Also there will be an emergency function to call nearby hospital and warn related people of the case.**

For me, I very much like the idea of the emergency call up for hospital, cause I usually not with my parent all the time, so in case of emergency, at least I know if they can press the button, then they will be safe.

As for the nutrition and exercise part, I'm not sure my dad will follow through, however, it will be a good idea if I can also see my dad's account, so I can also help support him to live a healthy life.

As for the nurse consultation, I think it's also a good idea to have a professional advising him as well. So we both can help him in case he's a strong head.

**How much budget do you have for taking care of your dad?**

I don't have a particular budget, but I usually buy him something healthy. I also pay for his trip when we travel together or go anywhere together. I'll say maybe around 10K baht a month. It's not that much comparing to how many days we will be living together.

## APPENDIX G: Sons Purposive Homogeneous Survey



### การจัดทำแผนธุรกิจคณะกรรมการจัดการธุรกิจอาหารมหาวิทยาลัยมหิดล

#### คำชี้แจง

แบบสอบถามชุดนี้เป็นงานวิจัยเพื่อศึกษาความต้องการของผู้บริโภคในการใช้

Application มือถือเพื่อสุขภาพที่สามารถแนะนำการกินอาหารที่ถูกหลักโภชนาการให้แก่ผู้สูงอายุ และนำข้อมูลมาประเมินความเสี่ยงของโรคที่ไม่ติดต่อ และให้พยาบาลให้คำแนะนำโดยตรงเพื่อเปลี่ยนพฤติกรรมผู้บริโภค เพื่อประกอบการเรียนวิชานิพนธ์ ของนักศึกษาระดับชั้นปริญญาโท วิทยาลัยการจัดการ มหาวิทยาลัยมหิดล

ผู้วิจัยใคร่ขอความอนุเคราะห์และความร่วมมือในการตอบแบบสอบถามจากท่านผู้ตอบแบบสอบถาม โปรดให้ข้อมูลในการตอบแบบสอบถามให้ครบทุกคำถาม ผู้วิจัยขอรับรองว่าข้อมูลที่ท่านให้ถือเป็นความลับและจะนำเสนอผลการวิเคราะห์ในภาพรวมเท่านั้น

**สำหรับลูกที่มีผู้สูงอายุ (50 ปีขึ้นไป) ในครอบครัว**

**คำชี้แจง** กรุณาทำเครื่องหมาย ✓ ลงในช่อง ( ) ที่ท่านเลือกเพียงคำตอบเดียว นอกจากจะกำหนดไว้เป็นอย่างอื่น

**1. เพศ**

1. ( ) หญิง

2. ( ) ชาย

**2. อายุ**

1. ( ) 21 – 30 ปี

2. ( ) 31 – 40 ปี

3. ( ) 41 – 50 ปี

4. ( ) 51 – 60 ปี





### 3. รายได้เฉลี่ย/ เดือน

- |                               |                               |
|-------------------------------|-------------------------------|
| 1. ( ) ไม่เกิน 10,000 บาท     | 2. ( ) 10,001 – 20,000 บาท    |
| 3. ( ) 20,001 – 30,000 บาท    | 4. ( ) 30,001 – 40,000 บาท    |
| 5. ( ) 40,001 – 50,000 บาท    | 6. ( ) 50,001 – 60,000 บาท    |
| 7. ( ) 60,001 – 70,000 บาท    | 8. ( ) 70,001 – 80,000 บาท    |
| 9. ( ) 80,001 – 90,000 บาท    | 10. ( ) 90,001 – 100,000 บาท  |
| 11. ( ) 100,001 – 150,000 บาท | 12. ( ) 150,001 – 200,000 บาท |
| 13. ( ) มากกว่า 200,000 บาท   |                               |

### 4. ในวันธรรมดาท่าน(ใช้เวลา)กับคุณพ่อคุณแม่เฉลี่ยวันละกี่ชั่วโมง?

- |                         |                         |                         |                         |
|-------------------------|-------------------------|-------------------------|-------------------------|
| 1. ( ) < 1 ชั่วโมง      | 2. ( ) 1 - 2 ชั่วโมง    | 3. ( ) 3 - 4 ชั่วโมง    | 4. ( ) 5 - 6 ชั่วโมง    |
| 5. ( ) 7 - 8 ชั่วโมง    | 6. ( ) 9 - 10 ชั่วโมง   | 7. ( ) 11 - 12 ชั่วโมง  | 8. ( ) 13 - 14 ชั่วโมง  |
| 9. ( ) 15 - 16 ชั่วโมง  | 10. ( ) 17 - 18 ชั่วโมง | 11. ( ) 19 - 20 ชั่วโมง | 12. ( ) 21 - 22 ชั่วโมง |
| 13. ( ) 23 - 24 ชั่วโมง |                         |                         |                         |

5. ในวันหยุดท่าน(ใช้เวลา)กับคุณพ่อคุณแม่เฉลี่ยวันละกี่ชั่วโมง?

1. ( ) < 1 ชั่วโมง      2. ( ) 1 - 2 ชั่วโมง      3. ( ) 3 - 4 ชั่วโมง      4. ( ) 5 - 6 ชั่วโมง  
 5. ( ) 7 - 8 ชั่วโมง      6. ( ) 9 - 10 ชั่วโมง      7. ( ) 11 - 12 ชั่วโมง      8. ( ) 13 - 14 ชั่วโมง  
 9. ( ) 15 - 16 ชั่วโมง      10. ( ) 17 - 18 ชั่วโมง      11. ( ) 19 - 20 ชั่วโมง      12. ( ) 21 - 22 ชั่วโมง  
 13. ( ) 23 - 24 ชั่วโมง

6. ท่านมี กิจกรรมอะไรบ้างที่ทำกับคุณพ่อคุณแม่

.....

.....

.....

7. ท่านมีคนดูแลคุณพ่อคุณแม่ ในยามสูงอายุหรือไม่?

1. ( ) ไม่มี      2. ( ) มี

8. ถ้ามี Application บนมือถือที่สามารถมีพยาบาลคอยให้คำแนะนำแก่คุณพ่อคุณแม่ของท่านในการกิน, ออกกำลังกาย, และอื่นๆ เพื่อเป็นการป้องกันโรคและเป็นการช่วยดูแลสุขภาพของคุณพ่อคุณแม่ของท่านไปในตัว ท่านมีความต้องการที่จะให้คุณพ่อคุณแม่ของท่านใช้ Application ดูแลในลักษณะนี้หรือไม่?

1. ( ) อยาก      2. ( ) ไม่อยาก

**9. ท่านเคยซื้อของบน อินเทอร์เน็ตหรือไม่?**

1. ( ) เคย

2. ( ) ไม่เคย

**10. ท่านมีงบประมาณสำหรับดูแลคุณพ่อคุณแม่คนละเจ็ดสิบ/ เดือนอยู่ที่เท่าไร?**

1. ( ) ไม่เกิน 2,000 บาท

2. ( ) 2,001 – 4,000 บาท

3. ( ) 4,001 – 6,000 บาท

4. ( ) 6,001 – 8,000 บาท

5. ( ) 8,001 – 10,000 บาท

6. ( ) 10,001 – 20,000 บาท

7. ( ) 20,001 – 30,000 บาท

8. ( ) 30,001 – 40,000 บาท

9. ( ) 40,001 – 50,000 บาท

10. ( ) 50,001 – 60,000 บาท

11. ( ) 60,001 – 70,000 บาท

12. ( ) 70,001 – 80,000 บาท

13. ( ) 80,001 – 90,000 บาท

14. ( ) 90,001 – 100,000 บาท

15. ( ) 100,001 – 150,000 บาท

16. ( ) 150,001 – 200,000 บาท

17. ( ) มากกว่า 200,000 บาท

ขอบพระคุณในความร่วมมือ

## APPENDIX H: Willingness to Pay



### การจัดทำแผนธุรกิจคณะกรรมการธุรกิจอาหารมหาวิทยาลัยมหิดล

#### คำชี้แจง

แบบสอบถามชุดนี้เป็นงานวิจัยเพื่อศึกษาความต้องการของผู้บริโภคในการใช้

Application มือถือเพื่อสุขภาพที่สามารถแนะนำการกินอาหารที่ถูกหลักโภชนาให้แก่ผู้สูงอายุ และนำข้อมูลมาประเมินความเสี่ยงของโรคที่ไม่ติดต่อ และให้พยาบาลให้คำแนะนำโดยตรงเพื่อเปลี่ยนพฤติกรรมผู้บริโภค เพื่อประกอบการเรียนวิชาสารนิพนธ์ ของนักศึกษาระดับชั้นปริญญาโท วิทยาลัยการจัดการ มหาวิทยาลัยมหิดล

ผู้วิจัยใคร่ขอความอนุเคราะห์และความร่วมมือในการตอบแบบสอบถามจากท่านผู้ตอบแบบสอบถาม โปรดให้ข้อมูลในการตอบแบบสอบถามให้ครบทุกคำถาม ผู้วิจัยขอรับรองว่าข้อมูลที่ท่านให้ถือเป็นความลับและจะนำเสนอผลการวิเคราะห์ในภาพรวมเท่านั้น

## สำหรับลูกที่มีผู้สูงอายุ (50 ปีขึ้นไป) ในครอบครัว

**คำชี้แจง** กรุณาทำเครื่องหมาย ✓ ลงในช่อง ( ) ที่ท่านเลือกเพียงคำตอบเดียว นอกจากจะกำหนดไว้เป็นอย่างอื่น

### 1. เพศ

1. ( ) หญิง

2. ( ) ชาย

### 2. อายุ

1. ( ) 21 – 30 ปี

2. ( ) 31 – 40 ปี

3. ( ) 41 – 50 ปี

4. ( ) 51 – 60 ปี



### 3. รายได้เฉลี่ย/ เดือน

- |                               |                               |
|-------------------------------|-------------------------------|
| 1. ( ) ไม่เกิน 10,000 บาท     | 2. ( ) 10,001 – 20,000 บาท    |
| 3. ( ) 20,001 – 30,000 บาท    | 4. ( ) 30,001 – 40,000 บาท    |
| 5. ( ) 40,001 – 50,000 บาท    | 6. ( ) 50,001 – 60,000 บาท    |
| 7. ( ) 60,001 – 70,000 บาท    | 8. ( ) 70,001 – 80,000 บาท    |
| 9. ( ) 80,001 – 90,000 บาท    | 10. ( ) 90,001 – 100,000 บาท  |
| 11. ( ) 100,001 – 150,000 บาท | 12. ( ) 150,001 – 200,000 บาท |
| 13. ( ) มากกว่า 200,000 บาท   |                               |

### 4. หลังจากที่ท่านได้เห็น Application มือถือนี้แล้ว ท่านอยากให้คุณพ่อคุณแม่ของท่านได้ใช้หรือไม่ ?

- |             |                |
|-------------|----------------|
| 1. ( ) อยาก | 2. ( ) ไม่อยาก |
|-------------|----------------|

### 5. หลังจากที่ท่านได้เห็น Application มือถือนี้แล้ว ท่านมีความพึงพอใจที่จะจ่ายค่าบริการการใช้งานอยู่ที่กี่บาทต่อเดือน หนึ่งเดือนมีการโทรให้คำปรึกษาหนึ่งครั้งต่อสัปดาห์รวมทั้งหมดสี่ครั้งต่อเดือน



## **APPENDIX I: Retired Medical Professional Qualitative Interview**

### **Qualitative for Retired Nurse**

**Date:** 20:31 Monday 25 April 2016

**Name:** Supathra Moranon

**Position:** Department Head, Professor of Nursing Unit at Siriraj Hospital

**Age:** 64

**Minutes of Interview:**

**Will retired nurses interested in becoming an advisor for elderly people online?**

**And where can I find them?**

Nurse is one of the professional occupations that remain to keep a strong bond even after retirement. After retirement, nurses are still committed to being a member of the nurse association. Therefore, in case you want to survey retired nurses, you can go for the association first. Not everyone comes to the association every month to meet up. But all in all, I'll say there are around four hundred people attending every time. However, there are very strict rules governing how people can conduct survey inside the Hospital. Even when I have to do my doctoral degree survey, I cannot even go around asking people to do survey for me. You have to get recommendation letter from your university first, and then submit to the Board of the Hospital for approval and authorization for you to come in to collect survey here. But this process will take a long time. I recommend you to work on this as soon as possible. However, another option is to quietly conduct online survey, as I am currently the professor doctor for nurses at the Hospital, I can help spread the survey among my student nurses in case you need it.

As for whether retired nurses will want to come help in this application or not, there are many factors to consider. First, I'm already retired as a nurse, however,

currently I am still working at the hospital as professor doctor for nurses, as the main reason is that I've always work for my entire life, so one day having to immediately stop working makes me feel bored. I believe that at this age, a lot of strength has already dissipates, and working for eight hours a day is no longer possible. However, it doesn't mean that we no longer have the strength to do anything. We can still work, just that we can no longer work eight to twelve hours a day like when we were still young. So I think in your application, you should let them be able to choose how many hours they want to work. Each people will not have the same strength and preferences, so giving them that choice should be the best outcome.

Secondly, when you are retired, most likely that you will already have steady income after retirement, either it come from government retirement benefits; or some small business you did when you were still young. At old age, your desire comes down to bear minimal, except health expenses will raise over time. Most elderly people will concentrate more on going to temples, donation, or doing community service. So, I don't think retired nurses will help support this kind of application purely for the money. If they want to do it, it's more for the soul than for the money.

Thirdly, not all elderly people have the same characteristic and behavior. I will say that ages 50 to 60 years are preparation for people to get ready for their retirement. These people will realized that for the next 20 years or so in their lives, they will have reduced income, so the tendency is to acquire more and use less. Once they retired at the age of 60, these 2 to 3 years from 60 to 62, will be the period of joy, where they finally have the freedom and flexibility to do whatever they want. So most of the time, these people will be travelling. Then things started to get boring again. Planning for trips will not be as fun and exciting as it used to be anymore. The next 2 to 3 years from 63 to 65, they will have to overcome boredom and depression. That's the reason why I came back to work again. These 6 years after retirement you can see the ups and down, shift in emotion for retired people. Once the first 6 years past, everything now becomes stable, and becomes a happy routine. A lot of people will have joy in dinning with friends, doing community service, or some will just be happy staying at home, cooking, cleaning, reading, whatsoever. So I think if retired nurses were to come help you in this application, they wouldn't be the first 3 years of their retirement period where they just got off from work and ready to have fun.

### **Are there any law and regulations relating to this type of business model?**

Nurses required maintaining their certification in order to continue to practice their profession. There is no age limit for this, as well as continuation of the certification usually is simply just attending training courses by the nurse federation. How many hours, depend on the yearly training topic itself. If that particular year has lots of new research findings, then the training course will be longer. Continuing the nurse certificate is not a big deal. The certificate expires every 5 years. To renew them we can just take the test, or go for seminar for 17 hours within that 5 years period. For retired nurse, their last certificate begins while they were 60, so ending when they are 65. After that I think around half the population will renew this certificate as it's not that difficult to do so.

Nurses are not required to work only in hospital, they can also work independently as a freelance, looking after patients at home, or work in clinics, as long as they have the certificate, they can perform their profession anywhere.

Nurses were trained for basic nutrition knowledge and other general medical knowledge. In the case of helping in this application, I believe they will be very helpful because they are equipped with basic medical knowledge already, and can preliminary advice patients while they are away from the hospital. Having nurses is better than not having anyone at all to help, because most patients will only come to the hospital when things have gotten out of hand already. However, in order to avoid any future complications, you should not advertise this application as having anything in relation to medical aspect. You should also try to get support from related institution to back you up as well. As you saw from your last visit, it seems that the doctors do support your idea very much, and these are the networks you must try to keep strong in order to succeed with this application.

### **How should the application nutritional value be default?**

If you are focusing on elderly people, then you cannot just have one normal. By the time people reached into their 50s they usually worked very hard, exhausting their physical body for years already. So elderly people usually comes with NCD already. Top major NCD are cancer, high blood pressure/ heart attack, stroke, and diabetes. These different types of non-communicable diseases required different

nutritional value intake. For example stroke is associated with cholesterol blockage in the blood vessel, therefore sodium and saturated fat must be reduced. On the other hand, if the patients have diabetes, they can have normal sodium intake, but sugar and carbohydrate should be reduced. So the application must be customized for each type of NCD in elderly patients. They cannot be treated as homogenous group. The application must be able to customize the basic nutritional value to fit with each patients, because for example people who has diabetes, all has different glucose intolerance level, therefore, they should be able to consult with their doctor in order to come up with the appropriate amount, while using nurses as an agent who helps maintain the patients habit, or in emergency cases where patients need immediate consultation. Also daily intake is not the same between different ages as well. You should look up TRDI first; however, what I know currently is that they are overstated. The daily intake information hasn't changed for 20 years already. So you will need to consult with your nutrition professor again to get professional judgment on how much to set for different ages, sex, and NCD.

**What kind of functions should be there in order to achieve the objective of preventive measures?**

In order to stay healthy, or to prevent/ maintain chronic diseases two major elements are nutritious food and exercise. So the basic function should have these two elements in them.

As for additional add on, due to chronic diseases can be very immediate and harmful, e.g. someone who has stroke can immediately collapse. So emergency function to inform hospital, their family, and consulting nurse should also be available.

If your application will have elderly people, you should also have online training, especially for nurses who will be performing the services.

**Are current nurses also interested in this kind of service?**

For nurses if they want an extra job, they will register with their hospital for looking after patients at their home. They normally get around 1,800 THB per day. Some will take on this extra job, but mostly nurse profession is very tiring already. I think the idea of taking care of patients online will be less tiring as they do not have to

travel and can choose according to their preferences. However, I don't know how much they will ask for. Normally for nurses salary range from 30,000 THB for young nurse, up to 100,000 THB for experienced one.





## APPENDIX J: Retired Medical Professionals Purposive Homogeneous Survey



### การจัดทำแผนธุรกิจคณะกรรมการจัดการธุรกิจอาหารมหาวิทยาลัยมหิดล

#### คำชี้แจง

แบบสอบถามชุดนี้เป็นงานวิจัยเพื่อศึกษาความต้องการของผู้บริโภคในการใช้

Application มือถือเพื่อสุขภาพที่สามารถแนะนำการกินอาหารที่ถูกหลักโภชนาให้แก่ผู้สูงอายุ และนำข้อมูลมาประเมินความเสี่ยงของโรคที่ไม่ติดต่อ และให้พยาบาลให้คำแนะนำโดยตรงเพื่อเปลี่ยนพฤติกรรมผู้บริโภค เพื่อประกอบการเรียนวิชาสารนิพนธ์ ของนักศึกษาระดับชั้นปริญญาโท วิทยาลัยการจัดการ มหาวิทยาลัยมหิดล

ผู้วิจัยใคร่ขอความอนุเคราะห์และความร่วมมือในการตอบแบบสอบถามจากท่านผู้ตอบแบบสอบถาม โปรดให้ข้อมูลในการตอบแบบสอบถามให้ครบทุกคำถาม ผู้วิจัยขอรับรองว่าข้อมูลที่ท่านให้ถือเป็นความลับและจะนำเสนอผลการวิเคราะห์ในภาพรวมเท่านั้น



## สำหรับบุคคลที่เกษียณอายุแล้ว – บุคลากรทางการแพทย์

**คำชี้แจง** กรุณาทำเครื่องหมาย ✓ ลงในช่อง ( ) ที่ท่านเลือกเพียงคำตอบเดียว นอกจากจะกำหนดไว้เป็นอย่างอื่น

### 1. เพศ

1. ( ) หญิง

2. ( ) ชาย

### 2. อายุ (ปัจจุบัน)

1. ( ) 50 – 54 ปี

2. ( ) 55 – 59 ปี

3. ( ) 60 – 62 ปี

4. ( ) 63 – 65 ปี

5. ( ) 66 – 70 ปี

6. ( ) 71 – 75 ปี

7. ( ) 76 – 80 ปี

8. ( ) 81 – 85 ปี

9. ( ) 86 – 90 ปี

10. ( ) มากกว่า 90 ปี

### 3. งานที่ท่านทำเป็นงานเกี่ยวข้องกับอะไรบ้าง (ก่อนเกษียณอายุ) ?

.....

#### 4. รายได้เฉลี่ย/ เดือน (ก่อนเกษียณอายุ)

- |                               |                               |
|-------------------------------|-------------------------------|
| 1. ( ) ไม่เกิน 10,000 บาท     | 2. ( ) 10,001 – 20,000 บาท    |
| 3. ( ) 20,001 – 30,000 บาท    | 4. ( ) 30,001 – 40,000 บาท    |
| 5. ( ) 40,001 – 50,000 บาท    | 6. ( ) 50,001 – 60,000 บาท    |
| 7. ( ) 60,001 – 70,000 บาท    | 8. ( ) 70,001 – 80,000 บาท    |
| 9. ( ) 80,001 – 90,000 บาท    | 10. ( ) 90,001 – 100,000 บาท  |
| 11. ( ) 100,001 – 150,000 บาท | 12. ( ) 150,001 – 200,000 บาท |
| 13. ( ) มากกว่า 200,000 บาท   |                               |

#### 5. ท่านมี กิจกรรมอะไรบ้างที่ทำอยู่ (หลังเกษียณอายุ)

.....

.....

.....

6. รายได้เฉลี่ย/ เดือน (หลังเกษียณอายุ)

- |                             |                              |
|-----------------------------|------------------------------|
| 1. ( ) ไม่เกิน 10,000 บาท   | 2. ( ) 10,001 – 20,000 บาท   |
| 3. ( ) 20,001 – 30,000 บาท  | 4. ( ) 30,001 – 40,000 บาท   |
| 5. ( ) 40,001 – 50,000 บาท  | 6. ( ) 50,001 – 60,000 บาท   |
| 7. ( ) 60,001 – 70,000 บาท  | 8. ( ) 70,001 – 80,000 บาท   |
| 9. ( ) 80,001 – 90,000 บาท  | 10. ( ) 90,001 – 100,000 บาท |
| 11. ( ) มากกว่า 100,001 บาท |                              |



7. ท่านมีความรู้สึกอะไรบ้าง (หลังจากที่ เกษียณแล้ว) – ตอบได้มากกว่าหนึ่งคำตอบ

- |   |                                    |
|---|------------------------------------|
| 1. ( ) สบายใจ                             | 2. ( ) เหนามีเพื่อนและสังคมน้อยลง  |
| 3. ( ) ดีใจที่ไม่ต้องไปทำงานประจำอีกแล้ว  | 4. ( ) เบื่อที่มีเวลาว่างมากเกินไป |
| 5. ( ) มีความยืดหยุ่นในการใช้ชีวิตมากขึ้น | 6. ( ) มีกิจกรรมทำน้อยลง           |
| 7. ( ) ชอบเข้าร่วมกิจกรรมให้ความบันเทิง   | 8. ( ) รู้สึกซึมเศร้า              |
- มากขึ้น
- |  |   |
|--|---|
| 9. ( ) ชอบทำกิจกรรมเพื่อสังคมมากขึ้น         | 10. ( ) หดความกระตือรือร้น                |
| 11. ( ) ชอบเรียนรู้อะไรใหม่ๆ ที่ไม่เคยมีเวลา | 12. ( ) อยากมีคุณค่าเหมือนตอนที่ทำงานอยู่ |
- ทำ
- |   |   |
|---|---|
| 13. ( ) ชอบทำความสะอาดบ้านให้สะอาด      | 14. ( ) เครียดเรื่องการเงินที่มีจำกัด   |
| 15. ( ) ได้ออกกำลังกายมากขึ้น           | 16. ( ) ก้าวเรื่องสุขภาพที่คาดเดาไม่ได้ |
| 17. ( ) ชอบไปกินข้าวกับเพื่อนๆ          |   |
| 18. ( ) มีความสัมพันธ์กับครอบครัวดีขึ้น |   |
| 19. ( ) มีเวลาเลี้ยงหลาน                | 20. ( ) อื่นๆ.....                      |
- .....

8. ท่านยังอยากที่จะทำงานเพื่อ สังคมอยู่หรือไม่?

- |             |                |
|-------------|----------------|
| 1. ( ) อยาก | 2. ( ) ไม่อยาก |
|-------------|----------------|

9. ถ้าท่านสามารถเลือกที่จะทำงานอย่างอิสระได้ เช่น การใช้ Application บนมือถือให้คำแนะนำแก่ผู้สูงอายุในการกิน, ออกกำลังกายให้ถูกต้อง, และอื่นๆ สามารถทำงานที่บ้านได้, ไม่มีเวลาทำงานออกงานตายตัว, ทำกี่ชั่วโมงต่อวันก็ได้, จะรับหรือไม่รับงานไหนก็ได้, ท่านมีความสนใจที่จะทำงานแบบนี้หรือไม่?

1. ( ) ทำ

2. ( ) ไม่ทำ

10. ถ้าท่านสนใจที่จะทำงานแบบอิสระ ท่านอยากที่จะทำงานวันละกี่ชั่วโมงต่อวัน?

1. ( ) 1 ชั่วโมง

2. ( ) 2 ชั่วโมง

3. ( ) 3 ชั่วโมง

4. ( ) 4 ชั่วโมง

5. ( ) 5 ชั่วโมง

6. ( ) 6 ชั่วโมง

7. ( ) 7 ชั่วโมง

8. ( ) 8 ชั่วโมง

11. ถ้าท่านสนใจที่จะทำงานแบบอิสระ ท่านคาดหวังรายได้ต่อเดือนอยู่ที่เท่าไร?

1. ( ) ไม่เกิน 3,000 บาท

2. ( ) 3,001 – 5,000 บาท

3. ( ) 5,001 – 7,000 บาท

4. ( ) 7,001 – 9,000 บาท

5. ( ) 9,001 – 10,000 บาท

6. ( ) 10,001 – 12,000 บาท

7. ( ) 12,001 – 14,000 บาท

8. ( ) 14,001 – 16,000 บาท

9. ( ) 16,001 – 18,000 บาท

10. ( ) 18,001 – 20,000 บาท

11. ( ) มากกว่า 20,000 บาท

12. ท่านใช้ อินเทอร์เน็ตในชีวิตประจำวันของท่านหรือไม่?

1. ( ) ใช่

2. ( ) ไม่ใช่

13. ท่านมีมือถือที่เชื่อมต่ออินเทอร์เน็ตหรือไม่?

1. ( ) มี

2. ( ) ไม่มี

14. ท่านสนใจที่จะทำกิจกรรมอะไรบ้างกับเพื่อนๆที่อยู่ในวัยเดียวกัน? – ตอบได้มากกว่าหนึ่งคำตอบ

1. ( ) ไปเที่ยวต่างประเทศ

2. ( ) ไปเที่ยวในประเทศ

3. ( ) ไปเที่ยวพิพิธภัณฑ์

4. ( ) เรียนทำอาหาร

5. ( ) เรียนวาดรูป

6. ( ) เรียนศิลปะหัตถกรรมต่างๆ

7. ( ) เรียนเล่นดนตรี

8. ( ) ไปดูละคร

9. ( ) ไปปิกนิก

10. ( ) ไปเดินช้อปปิ้ง

11. ( ) อ่านหนังสือให้เด็กๆอนุบาลฟัง

12. ( ) สอนประสบการณ์ให้แก่เด็กๆในโรงเรียน

13. ( ) ปลูกผักสวนครัว

14. ( ) ปลูกต้นไม้/ ปลูกป่า

15. ( ) ไปเล่นกับสัตว์เลี้ยงน่ารัก

16. ( ) ออกกำลังกายในสวนสาธารณะ

17. ( ) เรียนออกกำลังกายแบบโยคะ

18. ( ) เรียนออกกำลังกายแบบไทเก๊ก

19. ( ) เข้าอบรมการดูแลสุขภาพ

20. ( ) เข้าวัด ฟังธรรม นั่งสมาธิ

21. ( ) ทำกิจกรรมเพื่อสังคมต่างๆ

22. ( ) อื่นๆ.....



15. ท่านมีงบประมาณสำหรับการทำกิจกรรมต่างๆเฉลี่ย/ เดือนอยู่ที่เท่าไร?

- |                            |                             |
|----------------------------|-----------------------------|
| 1. ( ) ไม่เกิน 3,000 บาท   | 2. ( ) 3,001 – 5,000 บาท    |
| 3. ( ) 5,001 – 7,000 บาท   | 4. ( ) 7,001 – 9,000 บาท    |
| 5. ( ) 9,001 – 10,000 บาท  | 6. ( ) 10,001 – 12,000 บาท  |
| 7. ( ) 12,001 – 14,000 บาท | 8. ( ) 14,001 – 16,000 บาท  |
| 9. ( ) 16,001 – 18,000 บาท | 10. ( ) 18,001 – 20,000 บาท |
| 11. ( ) มากกว่า 20,000 บาท |                             |

ขอขอบคุณในความร่วมมือ



## APPENDIX K: Medical Professional Qualitative Interview

### Qualitative for Nurse

**Date:** 12:15 Monday 2 May 2016

**Name:** Suparak Dunaithorn

**Position:** OPD

**Age:** 42

**Minutes of Interview:**

#### How long do you have to work on a weekly basis?

A nurse profession has the same working hours as other profession, normally working for 8 hours per day. However, we can also do additional overtime for 4 hours per day on weekdays to earn extra income. But if we wanted to work for additional hours, we preferred to work part-time at other private hospital rather, as the pay is around 20% to 30% higher than public hospital.

We can also work on weekend for 8 hours straight overtime for one day.

Not everybody will want to do overtime or part-time, as it is obvious that after 8 hours shift we will already be physically exhausted. Normally, the new younger nurses will take on overtime job, but as getting older and older, it will be more physically tiring to do such a job.

Nurse salary starts at 15,000 THB, but we normally do overtime which usually pays for 100 THB per hour. So our entire income at the starter is in the range of 25,000 – 30,000 THB per month. But this also depends on where you work for your permanent job, which department you are in, what your specialization is, and where you work at your temporary job e.g. at clinics, private hospital, etc.

**Are you interested being part time special nurse at the patient's home?**

At every hospital there are registrations for special nurses, in which, these nurses will take care of patients at their home. Although income for these kinds of services are very high paid, however, not many people will want to do this. The only reason why nurses will take on this service is that they already have relationship with the patients themselves who they already took care of them when they were being patients at the hospital. Working at patient's home usually requires full time service, this means that most nurses who rendered this type of service have already quit from working at the hospital.

Although we can also take on this service after work, however, travelling and staying at patients home at night will be an issue for us to consider. Also, this can be physically exhausting to do after 8 hours working day.

**Are you interested in taking care of patient with regards to basic nutrition and exercise consultation to help aged patient in the prevention/ monitoring of non-communicable diseases and other general health advices?**

Yes, the good aspect of the service mentioned is that we no longer have to travel to patients, or even physically being engaged with the patients themselves. As we already are physically tired working 8 hours shift taking care of one patient to another patient, this application will be the solution for us to earn extra income when we are already physically exhausted from work.

**What are some of the functions within the mobile application you would like to have?**

I think taking care of patients we need to have some relationship with them. I prefer to take care of patients in my neighborhood more than people who live far away. In case if they needed a doctor, I can call up the hospital nearby for referral. Or even in emergency cases, if I'm nearby, there's a better chance for me to help them, more than if they are very far away.

## APPENDIX L: Medical Professionals Purposive Homogeneous Survey



### การจัดทำแผนธุรกิจคณะกรรมการจัดการธุรกิจอาหารมหาวิทยาลัยมหิดล

#### คำชี้แจง

แบบสอบถามชุดนี้เป็นงานวิจัยเพื่อศึกษาความต้องการของผู้บริโภคในการใช้

Application มือถือเพื่อสุขภาพที่สามารถแนะนำการกินอาหารที่ถูกหลักโภชนาให้แก่ผู้สูงอายุ และนำข้อมูลมาประเมินความเสี่ยงของโรคที่ไม่ติดต่อ และให้พยาบาลให้คำแนะนำโดยตรงเพื่อเปลี่ยนพฤติกรรมผู้บริโภค เพื่อประกอบการเรียนวิชานิตินพนธ์ ของนักศึกษาระดับชั้นปริญญาโท วิทยาลัยการจัดการ มหาวิทยาลัยมหิดล

ผู้วิจัยใคร่ขอความอนุเคราะห์และความร่วมมือในการตอบแบบสอบถามจากท่านผู้ตอบแบบสอบถาม โปรดให้ข้อมูลในการตอบแบบสอบถามให้ครบทุกคำถาม ผู้วิจัยขอรับรองว่าข้อมูลที่ท่านให้ถือเป็นความลับและจะนำเสนอผลการวิเคราะห์ในภาพรวมเท่านั้น

## สำหรับบุคลากรทางการแพทย์ - พยาบาล

**คำชี้แจง** กรุณาทำเครื่องหมาย ✓ ลงในช่อง ( ) ที่ท่านเลือกเพียงคำตอบเดียว นอกจากนี้จะกำหนดไว้เป็นอย่างอื่น

### 1. เพศ

1. ( ) หญิง

2. ( ) ชาย

### 2. อายุ

1. ( ) 21 – 30 ปี

2. ( ) 31 – 40 ปี

3. ( ) 41 – 50 ปี

4. ( ) 51 – 60 ปี

### 3. งานที่ท่านทำเป็นงานเกี่ยวข้องกับอะไรบ้าง?

.....

#### 4. รายได้เฉลี่ย/ เดือน

- |                               |                               |
|-------------------------------|-------------------------------|
| 1. ( ) ไม่เกิน 10,000 บาท     | 2. ( ) 10,001 – 20,000 บาท    |
| 3. ( ) 20,001 – 30,000 บาท    | 4. ( ) 30,001 – 40,000 บาท    |
| 5. ( ) 40,001 – 50,000 บาท    | 6. ( ) 50,001 – 60,000 บาท    |
| 7. ( ) 60,001 – 70,000 บาท    | 8. ( ) 70,001 – 80,000 บาท    |
| 9. ( ) 80,001 – 90,000 บาท    | 10. ( ) 90,001 – 100,000 บาท  |
| 11. ( ) 100,001 – 150,000 บาท | 12. ( ) 150,001 – 200,000 บาท |
| 13. ( ) มากกว่า 200,000 บาท   |                               |

5. ถ้าท่านสามารถเลือกที่จะทำงานอย่างอิสระได้ เช่น การใช้ Application บนมือถือให้คำแนะนำแก่ผู้สูงอายุในการกิน, ออกกำลังกายให้ถูกต้อง, และอื่นๆ สามารถทำงานที่บ้านได้, ไม่มีเวลาเข้างานออกงานตายตัว, ทำกี่ชั่วโมงต่อวันก็ได้, จะรับหรือไม่รับงานไหนก็ได้, ท่านมีความสนใจที่จะทำงานแบบนี้หรือไม่?

- |           |              |
|-----------|--------------|
| 1. ( ) ทำ | 2. ( ) ไม่ทำ |
|-----------|--------------|



6. ถ้าท่านสนใจที่จะทำงานเสริมแบบอิสระ ท่านอยากที่จะทำงานเฉลี่ยวันละกี่ชั่วโมงในทุกวัน

ธรรมดาต่อหนึ่งอาทิตย์ (5 วัน)?

- |                  |                  |
|------------------|------------------|
| 1. ( ) 1 ชั่วโมง | 2. ( ) 2 ชั่วโมง |
| 3. ( ) 3 ชั่วโมง | 4. ( ) 4 ชั่วโมง |
| 5. ( ) 5 ชั่วโมง | 6. ( ) 6 ชั่วโมง |
| 7. ( ) 7 ชั่วโมง | 8. ( ) 8 ชั่วโมง |

7. ถ้าท่านสนใจที่จะทำงานเสริมแบบอิสระ ท่านอยากที่จะทำงานเฉลี่ยวันละกี่ชั่วโมงในวันหยุดสุด

สัปดาห์ ทั้งสองวัน วันเสาร์และวันอาทิตย์?

- |                    |                    |
|--------------------|--------------------|
| 1. ( ) 1 ชั่วโมง   | 2. ( ) 2 ชั่วโมง   |
| 3. ( ) 3 ชั่วโมง   | 4. ( ) 4 ชั่วโมง   |
| 5. ( ) 5 ชั่วโมง   | 6. ( ) 6 ชั่วโมง   |
| 7. ( ) 7 ชั่วโมง   | 8. ( ) 8 ชั่วโมง   |
| 9. ( ) 9 ชั่วโมง   | 10. ( ) 10 ชั่วโมง |
| 11. ( ) 11 ชั่วโมง | 12. ( ) 12 ชั่วโมง |
| 13. ( ) 13 ชั่วโมง | 14. ( ) 14 ชั่วโมง |
| 15. ( ) 15 ชั่วโมง | 16. ( ) 16 ชั่วโมง |

8. ถ้าท่านสนใจที่จะทำงานเสริมแบบอิสระ ท่านคาดหวังรายได้ต่อเดือนอยู่ที่เท่าไร?

- |                            |                             |
|----------------------------|-----------------------------|
| 1. ( ) ไม่เกิน 3,000 บาท   | 2. ( ) 3,001 – 5,000 บาท    |
| 3. ( ) 5,001 – 7,000 บาท   | 4. ( ) 7,001 – 9,000 บาท    |
| 5. ( ) 9,001 – 10,000 บาท  | 6. ( ) 10,001 – 12,000 บาท  |
| 7. ( ) 12,001 – 14,000 บาท | 8. ( ) 14,001 – 16,000 บาท  |
| 9. ( ) 16,001 – 18,000 บาท | 10. ( ) 18,001 – 20,000 บาท |
| 11. ( ) มากกว่า 20,000 บาท |                             |

9. ท่านสนใจที่จะเป็นพยาบาลพิเศษเฝ้าไข้ผู้ป่วยประจำบ้านหรือไม่?

- |             |                |
|-------------|----------------|
| 1. ( ) สนใจ | 2. ( ) ไม่สนใจ |
|-------------|----------------|

10. ถ้าท่านสนใจที่จะทำงานเสริมเป็นพยาบาลพิเศษ ท่านอยากจะทำกี่วันต่อสัปดาห์?

- |              |              |
|--------------|--------------|
| 1. ( ) 1 วัน | 2. ( ) 2 วัน |
| 3. ( ) 3 วัน | 4. ( ) 4 วัน |
| 5. ( ) 5 วัน | 6. ( ) 6 วัน |
| 7. ( ) 7 วัน |              |

11. ถ้าท่านสนใจที่จะทำงานเสริมเป็นพยาบาลพิเศษ ท่านคาดหวังรายได้ต่อวันอยู่ที่เท่าไร? (1 วัน = 12 ชม)

- |                          |                           |
|--------------------------|---------------------------|
| 1. ( ) ไม่เกิน 500 บาท   | 2. ( ) 501 – 1,000 บาท    |
| 3. ( ) 1,001 – 1,500 บาท | 4. ( ) 1,501 – 2,000 บาท  |
| 5. ( ) 2,001 – 2,500 บาท | 6. ( ) 2,501 – 3,000 บาท  |
| 7. ( ) 3,001 – 3,500 บาท | 8. ( ) 3,501 – 4,000 บาท  |
| 9. ( ) 4,001 – 4,500 บาท | 10. ( ) 4,501 – 5,000 บาท |
| 11. ( ) > 5,000 บาท      |                           |

12. ท่านใช้ อินเทอร์เน็ตในชีวิตประจำวันของท่านหรือไม่?

- |            |               |
|------------|---------------|
| 1. ( ) ใช่ | 2. ( ) ไม่ใช่ |
|------------|---------------|

13. ท่านมีมือถือที่เชื่อมต่ออินเทอร์เน็ตหรือไม่?

- |           |              |
|-----------|--------------|
| 1. ( ) มี | 2. ( ) ไม่มี |
|-----------|--------------|

ขอบพระคุณในความร่วมมือ

## APPENDIX M: Jamorn Horathai

### Jamorn Horathai

Product Manager, Group Personal Financial Services

---

#### Summary

A multidisciplinary iOS software engineer with experience in project management, user experience design, user interface design, and game design.

Specialties: Software Project Planning, Management & Development

Programming Languages & Platforms: Objective-C, Python, Java, SQL, iOS, Cocos2D

---

#### Experience

##### **Founder, Software Engineer, Project Lead, Game Designer, Producer, Writer at Specter Research Institute Pte. Ltd.**

June 2013 - Present (3 years)

Engineered and implemented the entirety of an iOS client for a mobile multiplayer online role-playing game for the iPhone with Cocos2D using Objective-C.

Developed Python scripts to automate various pipeline tasks (i.e. generating animation texture atlases from multiple image files, generating client-data files from server-based resources to maintain single point of data, build script that ensures game assets are up to date.)

Lead the design and implementation of the game's User Interface.

Designed and co-developed the game's multiple systems: Combat System, Abilities & Items System, Inventory System, Location-based Encounter System, Mission System.

Managed a game production team consisting of 2 artists/animators, 1 graphic/UI designer, 1 sound engineer, and 1 software engineer.

Managed the project's timeline and requirements.

##### **Technology consultant and freelance software engineer at Woof Woof Studio**

October 2012 - May 2013 (8 months)

Engineered and implemented and helped release an interactive children's book application for the iPhone and iPad using the Cocos2d Framework in Objective-C.

Advised and collaborated with the project's design team to create the art and animation assets for the application.

Advised and collaborated with the sound engineering team to create the voice overs, sound effects, and metadata required for the custom voice narration system.

### **Co-Founder, Software Engineer at Beanstalk Studios LLP**

March 2012 - September 2012 (7 months)

Collaborating with artists, illustrators, and sound engineers to develop and release 3 childhood education applications for the iPhone and iPad. All applications included beautifully animated characters and voice narration.

Developed a photo feature that allows parents to use the app to take a picture of their kids while being framed by the app's cute characters.

### **Consultant, Project Manager at RSI PLUS LLP**

July 2011 - January 2012 (7 months)

Project managed and coordinated a condominium construction project in Pattaya, Thailand. Responsible for working directly with the architectural firm, interior design firm, and the quantity surveyor to complete the building full plan including the Bill of Quantity of the project and make sure all costs are accounted for before any construction begins.

Worked with a marketing firm to coordinate the marketing efforts before the project sales begin.

### **Assistant Product Manager at Standard Chartered Bank**

July 2009 - April 2011 (1 year 10 months)

Significantly contributed to the global revamp of Standard Chartered Bank's online interface across 30 markets.

Product managed the bank's innovative electronic banking platform "Breeze" helping launch the platform on the iPhone, iPad, and the web; successfully managed "Breeze Places" (the bank's location-based product for iPhone) from concept to delivery in 4 international markets: Thailand, China, UAE, and Indonesia.

Conceptualized, designed, and project-managed Standard Chartered Bank's personal financial management tool, the "Wishlist", for both the iPhone and the web which was successfully launched in Singapore and Malaysia.

### **IT & Innovation Intern at Bharti Foundation**

May 2007 - August 2007 (4 months)

In charge of the early development phase of the organization's school assessment information system for the future 1000 schools.

### **IT & Innovation Intern at Bharti Airtel**

May 2007 - August 2007 (4 months)

Researched on the possible usages of collaboration technologies within the company and how to effectively utilize and launch the technology.

Created the website allowing internal users to view the up-coming CEO convention being held in Macau.

### **Network Administration Intern at Berli Jucker Public Co Ltd**

August 2004 - December 2004 (5 months)

Assisted in deploying web-mail and web servers for companies in the TCC group which contained a database of over 1,000 employees in more than 5 companies.

Performed checks and maintenance of the physical network infrastructure of the company which spanned the whole of a 20-story building and consisted of over 500 computer terminals.

---

## Education

### **Singapore Management University**

Bachelor of Science (B.Sc.), Management Information Systems, General, 2005 - 2009  
Grade: 3.73 / 4.0

Activities and Societies: InnovateIT Competition, UNSA Overseas Aid Project Stepping Stone

### **Carnegie Mellon University**

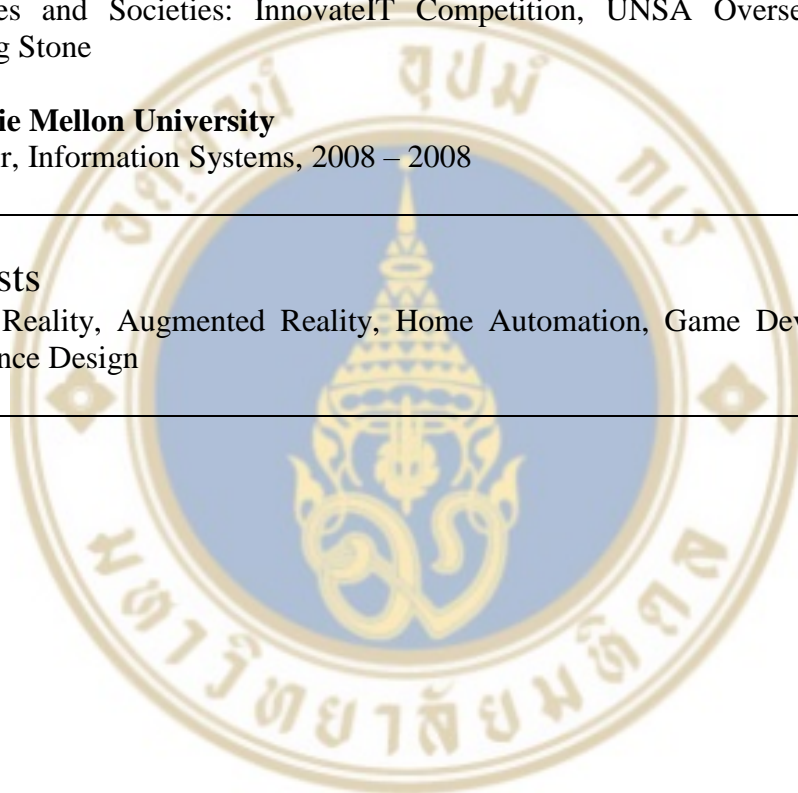
Bachelor, Information Systems, 2008 – 2008

---

## Interests

Virtual Reality, Augmented Reality, Home Automation, Game Development, User Experience Design

---





## APPENDIX N: Dr. Somsri Charoenkiatkul

### Deputy Director for Research

Asst. Prof. Somsri Charoenkiatkul, D.Sc.

E-mail : nusck@mahidol.ac.th

#### Education :

- 1992 D.Sc. (Nutrition), Mahidol University, Bangkok, Thailand
- 1987 Certificate in the field of Environmental Radiation Biology; International Atomic Energy Agency (IAEA), Seibersdorf, Austria.
- 1982 M.Sc. (Nutrition), Mahidol University, Bangkok, Thailand
- 1977 B.Sc. (Biochemistry), Chulalongkorn University, Bangkok, Thailand

#### Research Interests and Expertise :

- Thai food for optimal health: nutrients and phytochemicals.
- Nutrition and lifestyle factors on bone health, e.g. diet, physical activity.
- Bioavailability of nutrients, e.g. Calcium, Iron, B-carotene.

#### National and International Consultancy :

Technical Consultant, Division of Nutrition, Ministry of Public Health

#### Honors and Awards :

- March - September 1987 Recipient of the International Atomic Energy Agency Fellowship: Training at Agency Laboratory, Austria
- August 2003 International Atomic Energy Agency Fellowship: Study Visit to Purdue University, Indiana, USA

## **Publications :**

### **A. National Level**

1. Julapanthong P, Klanbut M, Rungarunlert S, Ngunboonsri P, Thanasak J, **Charoenkiatkul S**, Jittakhot S. correlation of nutritional composition and oxalate on plasma calcium and phosphorus concentration in pregnant mares. *Journal of Applied Animal Science (JAAS)*. 2008;1(1):39-50.
2. **Charoenkiatkul S**, Kosulwat V, Chavasit V, et al. Nutritive Values of healthy Thai foods. *J. Natl. Res. Council Thailand*. 2003;35(1):2-59.
3. Judprasong K, **Charoenkiatkul S**, Sungpuag P, et al. Nutrient composition of milk and milk products. *J Nutr Assoc Thai*. 2001;36(1):17-27.
4. Kajanachumpol S, Tantibhedhyangkul P, Suthutvoravut U, **Charoenkiatkul S**. Levels of blood free radicals and antioxidants in normal Thai children. *Rama. Med J*. 1997;20(2):113-8.
5. Sungpuag P, Puwastien P, **Charoenkiatkul S**, Kongkachuichai R. Composition of Thai foods I. Food from Cafeteria. *J Nutr Assoc Thai*. 1984;18(4):266-73.
6. Sungpuag P, Puwastien P, **Charoenkiatkul S**, Kongkachuichai R. Nutritive values of foods in northeast Thailand. *J Nutr Assoc Thai*. 1984;18(3):163-76.
7. Sungpuag P, Puwastien P, **Charoenkiatkul S**, Sirichakwal P, Tontisirin K, Thewthong N. Quantity and quality of breast milk in Thai mothers. *J Nutr Assoc Thai*. 1983;17(3):181-95.
8. Indrambarya V, Puangpet A, Puwastien P, Sungpuag P, **Charoenkiatkul S**. Utilization of soybean as supplement foods. *J Nutr Assoc Thai*. 1982;16(2-3):65-95.

### **B. International Level**

1. Tuntipopipat S, Zeder C, Siriprapa P, **Charoenkiatkul S**. Inhibitory effects of spices and herbs on iron availability. *International Journal of Food Science Nutrition*. 2008;24:1-13.
2. **Charoenkiatkul S**, Kriengsinyos W, Tuntipopipat S, Suthutvoravut U, Weaver CM. Calcium absorption from commonly consumed vegetables in healthy Thai women. *Journal of Food Science*. 2008;73(9):H218-H221.
3. Pongchaiyakul C, Kosulwat V, **Charoenkiatkul S**, Chailurkit LO, Rojroongwasinkul N, Rajatanavin R. The association of dietary calcium, bone mineral density, and biochemical turnover markers in rural Thai women. *Journal of the Medical Association of Thailand*. 2008;91(3):295-302.
4. Pongchaiyakul C, **Charoenkiatkul S**, Kosulwat V, Rojroongwasinkul N, Rajatanavin R. Dietary calcium intake among rural Thais in northeastern Thailand. *Journal of the Medical Association of Thailand*. 2008;91(2):153-8.
5. Kettawan A, Takahashi T, Kongkachuichai R, **Charoenkiatkul S**, Kishi T, Okamoto T. Protective effects of coenzyme Q10 on decreased oxidative stress resistance induced by Simvastatin. *Journal of Clinical Biochemistry & Nutrition*. May 2007;40:194-202.
6. Tuntipopipat S, Judprasong K, Zeder C, Wasantwisut E, Winichagoon P, **Charoenkiatkul S**, et al. Chili, but not turmeric, inhibits iron absorption in young women from an iron-fortified composite meal. *Journal of Nutrition*. 2006;136(12):2970-4.

7. Pongchaiyakul C, Nguyen TV, Kosulwat V, Rojroongwasinkul N, **Charoenkiatkul S**, Pongchaiyakul C, et al. Defining obesity by body mass index in the Thai population: An epidemiologic study. *Asia Pacific Journal of Clinical Nutrition*. 2006;15(3):293-9.
8. Judprasong K, **Charoenkiatkul S**, Sungpuag P, Vasanachitt K, Nakjamanong Y. Total and soluble oxalate contents in Thai vegetables, cereal grains and legume seeds and their changes after cooking. *Journal of Food Composition and Analysis*. 2006;19(4):340-7.
9. Pongchaiyakul C, Kosulwat V, Rojroongwasinkul N, **Charoenkiatkul S**, Thepsuthammarat K, Laopaiboon M, et al. Prediction of percentage body fat in rural Thai population using simple anthropometric measurements. *Obesity Research*. 2005;13(4):729-38.
10. Pongchaiyakul C, Nguyen TV, Kosulwat V, Rojroongwasinkul N, **Charoenkiatkul S**, Eisman JA, et al. Contribution of lean tissue mass to the urban-rural difference in bone mineral density. *Osteoporosis International*. 2005;16(12):1761-8.
11. Chailurkit LO, Suthutvoravut U, Mahachoklertwattana P, **Charoenkiatkul S**, Rajatanavin R. Biochemical markers of bone formation in Thai children and adolescents. *Endocrine Research*. 2005;31(3):159-69.
12. Pongchaiyakul C, Nguyen TV, Kosulwat V, Rojroongwasinkul N, **Charoenkiatkul S**, Rajatanavin R. Effect of urbanization on bone mineral density: A Thai epidemiological study. *BMC Musculoskelet. Disord*. 2005;6(1):5-11.
13. Pongchaiyakul C, Nguyen TV, Kosulwat V, Rojroongwasinkul N, **Charoenkiatkul S**, Eisman JA, et al. Effects of physical activity and dietary calcium intake on bone mineral density and osteoporosis risk in a rural Thai population. *Osteoporosis International*. 2004;15(10):807-13.
14. Mahachoklertwattana P, Suthutvoravut U, **Charoenkiatkul S**, Chongviriyaphan N, Rojroongwasinkul N, Thakkinstant A, et al. Earlier onset of pubertal maturation in Thai girls. *Journal of the Medical Association of Thailand*. 2002;85(suppl 4):S1127-S1134.
15. Pongchaiyakul C, Kosulwat V, Rojroongwasinkul N, **Charoenkiatkul S**, Chotmongkol R, Rajatanavin R. Bone mineral density in rural Thai adults living in Khon Kaen province. *Journal of the Medical Association of Thailand*. 2002;85(2):234-44.
16. Chailurkit LO, Pongchaiyakul C, **Charoenkiatkul S**, Kosulwat V, Rojroongwasinkul N, Rajatanavin R. Different mechanism of bone loss in ageing women and men in Khon Kaen Province. *Journal of the Medical Association of Thailand*. 2001;84(8):1175-82.
17. Suthutvoravut U, **Charoenkiatkul S**, Chitchumroonchokchai C, Kosulwat V, Mahachoklertwattana P, Rojroongwasinkul N. Elevated serum cholesterol levels in bangkok children and adolescents. *Journal of the Medical Association of Thailand*. 1999;82(suppl1):S119- S121.
18. Kramer TR, Udomkesmalee E, Dhanamitta S, Sirisinha S, **Charoenkiatkul S**, Tuntipopipat S, et al. Lymphocyte responsiveness of children supplemented with vitamin A and zinc. *American Journal of Clinical Nutrition*. 1993;58(4):566-70.



19. Udomkesmalee E, Dhanamitta S, Sirisinha S, **Charoenkiatkul S**, Tuntipopipat S, Banjong O, et al. Effect of vitamin A and zinc supplementation on the nutriture of children in Northeast Thailand. *American Journal of Clinical Nutrition*. 1992;56(1):50-7.
20. **Charoenkiatkul S**, Valyasevi A, Tontisirin K. Dietary approaches to the prevention of vitamin A deficiency. *Food & Nutrition Bulletin*. 1985;7(3):72-6.

### C. Report and Books

1. **Charoenkiatkul S**, Dissayabutr W, Sueblinwong T. Functional properties of selected Thai non-coconut curry pastes and their ready-to-cook products using in vitro technique. Research report submitted to Thailand Research Fund. December, 2007.
2. **Charoenkiatkul S**, Dissayabutr W, Titatan Y, Pousungthong U. Flavonoid content in Thai dishes. Research report submitted to Thailand National Research Council. September, 2007.
3. **Charoenkiatkul S**, Chitchumroonchokchai C, Pongutta S, Angkhasirisap W, Butadej D. Effect of Kaeng Lieng on NAD(P)H: quinone reductase activity (QR) and azoxymethane-induced aberrant crypt foci (ACF) in Wistar rats. Research report submitted to Thailand National Research Council. September, 2007.
4. **Charoenkiatkul S**, Chitchumroonchokchai C, Dissayabutr W, Titatan Y, Pousungthong U. Functional properties of some popular Thai dishes. Research report submitted to Thailand National Research Council. September, 2006.
5. **Charoenkiatkul S**, Dissayabutr W, Siwarungsun N, Sueblinwong T. Evaluation of functional properties in selected Thai curry pastes and dishes using in vitro technique. Research report submitted to Thailand Research Fund. June, 2006.
6. **Charoenkiatkul S**, Dissayabutr W, Boonpraderm A, Titatan Y, Ruamruk M. Development of Thai set menu. Research report submitted to Thailand National Research Council. September, 2005.
7. Chavasit V, Kosulwat V, **Charoenkiatkul S**, et al. Thai foods: Potential in the world market. Research report submitted to Thailand Research Fund. November, 2002
8. Chavasit V, Winichagoon P, **Charoenkiatkul S**, Rojroongwasinkul N., Judprasong K, Thongplave C. Salt iodization in Thailand and factors affecting quality of iodized salt. Research report submitted to the UNICEF, October 1999.
9. Wasantwisut E, Sungpuag P, Viriyapanich T, Sirichakwal P, **Charoenkiatkul S**, Chitchumroonchokchai C, Banjong O, Dhananiveskul V, Toungsuwan S, West KP, Jr., Yamani S, Haskell M. Impact of dietary vitamin A intervention on total body stores in Thai lactating women. Research report submitted to the IAEA, December 1999.
10. **Charoenkiatkul S**, Kosulwat V. Traditional Thai diet and longevity. A Report submitted to the Thailand Research Fund. June 1998.


---

### Research Experiences :

1. Chemical analysis of food
2. Biochemical and functional assessment of vitamin A.
3. Micronutrient interaction : vitamin A, zinc, and iron
4. Diet, physical activity and bone health.

## APPENDIX O: DEVT Application Development Quotation

**ใบเสนอราคา**  
**Quotation** (ต้นฉบับ / original)



ลูกค้า / Customer	คุณธรรม ภูมิ ปอระวาง	เลขที่ / No.	QO-20160500005
ที่อยู่ / Address	กรุงเทพมหานคร	วันที่ / Issue	30/05/2016
เลขผู้เสียภาษี / Tax ID	-	ใช้ได้ / Valid	02/06/2016
ผู้ติดต่อ / Attention	-	อ้างอิง / Ref.	-

---

ผู้ออก  
issuer

บริษัท เทพที่ จำกัด (สำนักงานใหญ่)  
เลขที่ 9/3 ซอยอิสรวิวัฒน์ 4 ถนนวิภาวดี แสงสว่าง กรุงเทพมหานคร 10150

เลขผู้เสียภาษี / Tax ID 0105550001312

จัดเตรียมโดย / Prepared by CHARWAT INPLAB

T: 0-2009-2099 E: chaiwat.inp@devt.net

W: www.devt.net

รหัส ID no.	คำอธิบาย Description	จำนวน Quantity	ราคาต่อหน่วย Unit Price	มูลค่าก่อนภาษี Pre-tax amount
	Mobile application for recorded food nutrition	1.00	350,000.00	350,000.00

หมายเหตุ / Remarks	ราคาสุทธิสินค้าที่เสียภาษี (บาท) / Net Total (Exclusive VAT)	350,000.00
	ภาษีมูลค่าเพิ่ม (บาท) / VAT 7%	24,500.00
	จำนวนเงินรวมทั้งสิ้น (บาท) / Grand Total	374,500.00
	จำนวนเงินรวมทั้งสิ้น	สามแสนเจ็ดหมื่นสี่พันห้าร้อยบาทถ้วน

อนุมัติโดย / Approved by

ยอมรับใบเสนอราคา / Accepted by



## **APPENDIX P: Interview with Dr. Khunchit J.**

### **Interview for INMU Thai Food Composition Database**

**Date:** 12:52 Friday 10 June 2016

**Name:** Dr. Kunchit J. (081-3659587)

**Position:** Oversight INMU Thai Food Composition Database of Mahidol Institute of Nutrition

**Minutes of Interview:**

Based on the E-mail send to INMU Thai Food Composition Database of Mahidol Institute of Nutrition for the request for quotation of the database, Dr. Kunchit J., informed that this database is an open source database, therefore openly freely to the public. He informed that when he wrote a book relating to Thai food composition, he simply just reference his information back to this database.

However, based on the Monday 6 June 2016 meeting with the board of the institute, the board informed that the entire database is currently not for sales to the public yet. The Institute transferred the rights to INMUCAL under the Institute of Nutrition. INMUCAL is nutrition database software that filled in the missing nutritional values that INMU did not yet research on. The INMUCAL software is sold for 6,000 THB. Once purchased this software, you can extract the database for your application; however, you cannot change the database information. There are some companies that already do this to INMUCAL. We have no policy to sue them as we want to open this information to the public as much as possible.

For further details, please contact Dr. Orapin B. as she is currently the direct oversight of INMUCAL, and also Dr. Uraiporn C. as she is the initiator of INMUCAL and worked with Thai Health Organization for using INMUCAL in mobile application.



## **APPENDIX Q: Interview with Dr. Orapin B.**

### **Interview for INMULCAL**

**Date:** 14:41 Friday 10 June 2016

**Name:** Dr. Orapin B. (02-8002380 ext. 314)

**Position:** Oversight INMULCAL of Mahidol Institute of Nutrition

#### **Minutes of Interview:**

Dr. Orapin B. informed that INMULCAL software currently having nutritional database ND2.1 which is nutritional information since 1992, however, in August 2016 will release version ND2.2 updated information 2015. The price for INMULCAL is 5,600 THB after tax, having 5 user keys. For purchase of additional user keys, price per key is 200 THB after tax. For all training, free of charge as the Institute want to spread the knowledge of nutrition as much as possible.

As for using the database with other commercial purposes, such as another mobile application, Dr. Orapin informed that once purchased, the database belongs to the person who brought it. However, within the software coding, there must be reference source database to INMULCAL. She informed that Amway also does this already in their Bodykey Application, in which the Institute has no rejection as they want to promote nutritional knowledge to the public as much as possible.