

Title	Proposal of visualizing model of customer demands sufficiency degree in designing private life insurance
Sub Title	
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Publisher	慶應義塾大学大学院システムデザイン・マネジメント研究科
Publication year	2016
Jtitle	
JaLC DOI	
Abstract	
Notes	修士学位論文. 2016年度システムデザイン・マネジメント学 第239号
Genre	Thesis or Dissertation
URL	<a href="https://koara.lib.keio.ac.jp/xoonips/modules/xoonips/detail.php?koara_id=KO40002001-00002016-0047">https://koara.lib.keio.ac.jp/xoonips/modules/xoonips/detail.php?koara_id=KO40002001-00002016-0047</a>

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Proposal of Visualizing Model of Customer Demands  
Sufficiency Degree in Designing Private Life Insurance

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March 2017

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## SUMMARY OF MASTER'S DISSERTATION

Student Identification Number	81533350	Name	Fumii Taketani
Title <b>Proposal of Visualizing Model of Customer Demands Sufficiency Degree in Designing Private Life Insurance</b>			
Abstract <p>Japan is the second largest life insurance market in the world which almost 90% of the household have life insurance contract. Although, the survey result shows that most of policy holder are not confident enough with the understanding of their contract, for example what kind of financial risk will be covered and the detail of the condition of benefit being paid. Life insurance is not a physical product which people can see or touch to understand it. The information of life insurance will be explained or provided verbally by the sales person or by the written document using technical and legal terms, which customer may imagine something different as they are not familiar with the terms being used for the explanation.</p> <p>This paper aim to propose a visualised three-dimensional model which represents the structure, essence and the concept of insurance. The Visualising model of customer demand sufficiency degree enables to comprehends the function of insurance in public social security, private life/non-life insurance and customer demands point of view. Through the process of understanding insurance as a system using this model, people will understand how can insurance support their financial risk and find out what they should and should not expect for private life insurance product.</p> <p>Through the result of workshop, the interviews to the professionals and the specialist, and case studies conducted as an evaluation of the model, it was proved that the model helped understanding the features and function of life insurance and participants could know their needs of insurance. And, also they had the impression that life insurance is something valuable and will benefit for future financial risks.</p>			
Key Word(5 words)  Life insurance, Customer needs, Visualising model, Financial risk, Benefit			

# Acknowledgement

First of all, I would like to express my deepest appreciation to Prof. Tetsuya Toma. Without his understanding and warm support, I would not be able to make this work into a piece. I would like to thank co-advisor Associate Prof. Naoko Taniguchi for practical advice.

I am deeply grateful to Prof. Toshiyuki Yasui for valuable feedback and practical advice from the US and in Japan, and Prof. Seiko Shirasaka for useful suggestions and face-to-face discussion. They both always cheered me up by giving positive and detailed comments which throw light and show the way. This accomplishment would not have been possible without them.

Many of the alumni and doctoral student of Keio SDM and EDGE program have helped write this work possible. First among of them I would like to appreciate Mr. Nobuyuki Kobayashi for continuing and technical help and advice, and Mr. Tsuyoshi Hirose for constant encouragement and support.

I would like to thank the experts who were involved in the evaluation for this dissertation: Mr. Nobuki Hosoki, Mr. Hirobumi Yamada, Mr. Toru Takayanagi and Mr. Tomohiro Matsumoto. Without their passionate participation and input as a professional, the evaluation could not have been successfully conducted.

I would also like to thank, Derek Leong from Australia, Nao Hayashi from UK, Chinatsu Endo from Nepal, and Jocelyn Andria from Indonesia, for helping on evaluating international applicability of the model, despite the huge physical distance and time difference. And Takayuki Sato from US, for providing me assistance and invaluable comments on my writing and grammar.

Most importantly, all of my friends have helped going through two years at Keio SDM possible, enjoyable and worthwhile. Every moment here at Keio SDM was beyond imagination. And it would not have happened without you all. Thank you to you all from bottom of my heart. Graduate school isn't the most important thing in life, but good friends and good times are.

Finally, this work could not have been possible without the huge love, unfailing support and continuous encouragement of my family and my cat Gigi, throughout my years of study and through the process of researching and writing this dissertation. I hope this work can be a token of giving back a little part of great thanks to them.

Fumii Taketani

## 謝辞

本研究を遂行するにあたり、多くの皆さまにご指導及びご協力いただきましたことに心より感謝申し上げます。特に、指導教授である慶應義塾大学システムデザイン・マネジメント研究科当麻哲哉先生には2年間にわたり、研究だけでなく授業や研究科のイベントなどにおいてもひとかたならぬご指導を賜りました。常に優しく、時に厳しくご指導いただき、自由と学びを満喫した2年間の学生生活の成果を修士論文という形にまとめられたのは先生のご指導の賜物にほかなりません。最後まで本当にありがとうございました。

保井先生、白坂成功先生には、専門家としてお立場から、また違った視点での助言をいただきました。先生方からの御言葉をいただかなければ、本論分の完成は無かったと言っても過言ではありません。厳しい指摘と温かいご指導に心から感謝申し上げます。

査読をしていただきました、谷口尚子先生には本論分の完成にあたり、多くの的確なご助言を賜りましたことに御礼申し上げます。

白坂研の修了生・博士課程の皆様、Keio EDGE プログラムの関係者の皆様、特に小林延至さんと広瀬毅さんのサポートに心より感謝いたします。研究が進まず、筆が進まず、投げ出しそうになった時も乗り越えられたのは、お二人のお力添えによるものです。本当にありがとうございました。

年末の忙しい中、突然の依頼にも関わらず快く有識者インタビューに応じてくださいました、細木信希様、山田博文様、高柳達様、松本智宏様、ご協力ありがとうございました。専門家だからこそできる的確な指摘とアドバイス及びいただいた賛辞が本論文を完成させる大きな原動力となりました。そして、物理的な距離と時差を飛び越え、オーストラリア、イギリス、ネパールそしてインドネシアの各国より評価作業にご協力くださいました Derek Leong さん、林なおさん、遠藤智夏さん、Jocelyn Andria さん、英文法のチェックにご尽力くださいました佐藤貴之さん、心より御礼申し上げます。

慶應義塾大学システムデザイン・マネジメント研究科における2年間の学生生活をあらゆる面からサポートしてくださった大切な友人、SDM の関係者の皆様、SDM を通じて繋がっている皆様に感謝申し上げます。皆様の存在なくては、これほどまでに濃密でぶっ飛んだ、すべての瞬間が想像をはるかに超えた日々にはなりえませんでした。

勉学に打ち込める環境を整えてくださるだけでなく、様々な面よりサポートくださいました日吉学生部大学院担当の皆様、特に濱岡寿久さん、当麻研究室の天津さんに厚く御礼申し上げます。

常に信じ、特に生活面での愛の溢れたサポートをし続けてくれた家族と愛猫のジジの存在なしに、2年間の学生生活も研究も修士論文の完成は望めませんでした。伝えきれないほどの感謝の言葉と愛と共に本論文を捧げます。

最後になりましたが、これまで温かい目で見守ってご支援下さった、この場には書ききれない多くのご協力いただいた皆様に深い感謝の意を表して謝辞といたします。

竹谷 郁衣

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# 1. Introduction

In this research, the visualising model of life insurance customer demand sufficiency degree will be discussed. The model was created to support the customer who are willing to buy the product or are interesting with life insurance. This model was developed using Japanese insurance system as a base. As the concept of insurance all around the world is same in general, the insurance system also is similar among the world. In this paper, the Japanese insurance system is used to explain about insurance otherwise mentioned.

## 1.1. Background

In May 2016, the Insurance Business Law\* was revised. The Insurance Business Law is a basic law to supervise insurance business and operation which main purpose is to protect the policy owner. This change required not only the insurance companies, but also the insurance agency to follow the ‘basic rules of insurance solicitation’ which was established by this amendment. The basic rules require the followings (FSA, 2016);

- Introducing ‘Duty of intention grasp’
  - i. Comprehend customer’s needs
  - ii. Realise the insurance plan proposal based on the customer needs
  - iii. Tracking the record of initial and finalized proposal including the customer needs.

The actual revision of the Insurance Business Law includes several more changes but will not go into the details here as it is out of the scope of this paper.

Before this change, insurance company had followed the order from Financial Services Agency (FSA) to ‘Confirm’ customer needs. Due to this revision of Insurance Business Law the current confirmation process has been strengthened from ‘Confirming’ to ‘comprehends’ their intension. However, ‘how’ to confirm the customer needs is, has been left as an area up to life insurance company’s discretion and it is not clearly stated in the revised law.

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\* Insurance Business Law is a basic law to supervise insurance business and operation which it’s main purpose is to protect the policy owner.



### 1.1.1. The cause of the change of Insurance Business Law

The first life insurance company in Japan, Meiji Life Insurance company (Current Meiji Yasuda Life Insurance Company) started business in 1881. Since then, now 41 life insurance company, and 51 non-life insurance company is in business in Japan.

In life insurance company point of view, including the legal changes occurred following the social situation and various changes of the world and economy, company had modified their business operations, products on market to meet the legal changes and the current time to time. Especially, knowing the customer needs is something most important for life insurance company. As because without knowing it, life insurance company would not be able to approach any kind of customer to prepare the best suitable insurance plans. The technics of the approaches and methodologies to understand customer needs has been looked back and revised from time to time in each company, especially by each sales person of the life insurance companies.

However, the legal change to introduce 'Duty of intention grasp' had to happened now. It is a first and official legal order after more than 130 years after life insurance business started in Japan, to those who will be involved in insurance solicitation to confirm the 'customer's needs'. Why had this had to happen now? The document from the Financial Services Agency including the Guideline of supervision does not clearly mention it's cause of the change and why it had to happen now something alike the reason of the change is only mentioned in the introduction section of the report by the working group of guidance provision of insurance products and service in Financial System Council.

Followings in italic are the quote from the report.

*The social environmental changes especially declining birth rate and a growing proportion of elderly people, is leading the new as well as the changes to what people require for insurance. Also, the way insurance product being sold has more varieties due to the expansion of insurance agent and non-face-to-face sales such like sales via internet.*

*Due to such changes, the necessity has increased for the followings.*

- *Insurance company will provide wider range of insurance product and services to meet the new type of customer needs by declining birth rate and a growing proportion of elderly people.*

- *Define the rule for insurance solicitation and sales to meet the diversity of forms of selling.*

### 1.1.2. Customer needs for Life insurance company

There are two types of 'Customer Needs' in life insurance company as of now. The reason why it is collected or confirmed and used for is different, as well as the purpose of 'customer needs' information being used in life insurance company is different. One is customer needs for 'Sales' which is used by the sales person at the time of solicitation. The other is customer needs for 'Marketing' which will be used to create a new product. Customer needs for sales will be collected when sales person meets customer. The customer might be a completely new customer who does not have a contract or any kind of relationship with the company, or might be the existing customer who already has a contract (policy owner) or has some kinds of relationship with the company as an insured or beneficiary. The customer needs for sales, is mainly used to create a proposal to individual customer. In this case, the customer needs are only reflected to that person's sales illustration result of life insurance plan. Which means that the information collected from one person will only be used for that one person.

On the other hand, the customer needs for marketing will be collected from various sources with variety of demographic differences. The information collected will be analysed to find out the market trend or what kind of features and function are required in general or by the specific group of people. These information is used to develop new product in life insurance company. In this case, the new product will have a target customer from the sales promotion prospective, although, the direct link between the initial customer needs that has been collected and the new product cannot be seen. This is because the customer needs for marketing treats customer needs as needs by the group of customers, whereas customer needs for sales are targeting the individual person as a customer per solicitation cases.

Followings are the reason that life insurance company consider customer needs as important factor.

- Life insurance company thought that providing varieties of life insurance products will anyhow fulfil each individual customer needs.

- Deguchi(2011), Tanaka(2009) mentions that, until 1980's Japanese life insurance company could not develop original life insurance product which is different from others. They could only sell same type of product and could not differentiate themselves from the others from product point of view. If they could not differentiate by the product, therefore, Japanese Life insurance company had more weight to have large number of sales person to earn many contracts compare to the other companies. However, huge number of sales person could not point out the strength of their product or the benefit of purchasing it as it is same with the others. They had to more focus on other technics such like present and friendship to sell the contract, and to get the new candidate as a customer to be introduced by the existing customers.

In this case, both customer and sales person does not bother what they really need as a life insurance products or what life insurance can be provided to the customer, if they earn more from the presents or other things.

Since 1990's, Life insurance companies in Japan are now focused for differentiating themselves by creating attractive new product which was caused by the legal changes.

### 1.1.3. Customer needs at solicitation

In U.K., life insurance company provides a document called 'Key features' and 'Suitability letter' at solicitation. Key features document contains the objective of the product and risk factors information of the life insurance product. And Suitability letter contains the reason why the product is suitable for the customer. However, these two documents facing problems that it contains large volume of information to follow the detailed regulation, or technical terms being used frequently. (Takasaki, 2007) Also, it's been reported by the Financial Services Authority that the benefit of Suitability letter is not meeting the cost required. (FSA U.K. 2007)

Despite how Japanese life insurance company is treating customer needs as of now, the change of Insurance Business Law is requiring to comprehend and historically records customer needs so that the sales person of life insurance

company can propose the most appropriate insurance plan to the individual customers.

NLI Research Institute\* which is a think tank of Japanese largest life insurance company has compiled a book about life insurance. The book was edited based on the lecture material conducted at the class in The University of Tokyo, which the class aim to earn basic understanding of life insurance. Based on this book entitled 'Outline of Japanese Life Insurance' there is a description about the feature of the sales of life insurance are like as of now. Below in italic is the summary of the description about customer needs.

- *Life insurance is not physical products.*
- *The needs for life insurance (especially for mortality insurance) are potential which customer is not even aware of..*
- *Customer needs must be aroused.*

The detail approach or the way they communicate with the customer to explain the products or about insurance might differs by company or per sales in-charge. From this, understanding of customer need for sales has been considered as a technic which each sales person has or earn through experience in Japanese Life insurance company.

The JD Power press release in 2016 reported that the top reason of choosing life insurance by the customer was 'It was the insurance product or plan which was matching myself' and it is increasing since last year. The report also says that the results are showing selecting criteria of life insurance (product or plan) is shifting from the sales person in-charge, to understanding or satisfaction sense of insurance product itself as well as the consciousness of it meeting the need of oneself.

#### 1.1.4. Trigger to buy

Kamada(2012) points out that people hesitate buying insurance product through internet because it is hard to select the most applicable product for that individual customer by him/herself. On internet, several sites allow people to compare the difference of multiple product but the survey result shows buying the insurance product though internet is most not affinity. Kamada conclude

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\* ニッセイ基礎研究所 <http://www.nli-research.co.jp/en/company/?site=nli>

the reason of this is because the meaning of comparing multiple insurance product is not properly evaluated by the customer.

This shows that trigger of the people in Japan to buy insurance is not whether they 'like' it or they 'want' it. The people in Japan considers the matched with their own needs or not, more importantly.

#### 1.1.5. Customer guideline of buying life insurance

Crane (1984) points out the followings as a 'Consumer Guideline' when buying a health insurance\*. (The keyword which author thinks important are in italic)

Buying proper health insurance is not a simple matter, but it may be well worth the time and effort that are required. Here are some guidelines:

1. Find out what *protection you already have*, especially under your group policy if you have one.
2. Decide what *additional protection you need*, if any.
3. Ask questions. Make sure the *new policy covers what you want it to*. If a policy language isn't clear, ask the agent to show you exactly where it covers the point you are concerned about.
4. Avoid limited policies, including those covering only one kind of ailment such as cancer. Good policies cover all kinds of illnesses and accidents.
5. Base your program on the major medical approach. Avoid first-dollar coverage.

This is clear and practical advice to the consumer who is willing to buy insurance product. However, at the same time it is very practical for the insurance company too, as it tells the critical information and process to confirm to identify customer needs.

#### 1.1.6. Customer needs

So, what is 'Customer needs', after all?

According to Kotler, people's needs, wants and demands are defined as follows:(the keyword is highlighted in italic by the author)

A human *need* is a state of deprivation of some basic satisfaction. People require food, clothing, shelter, safety, belongings, and esteem. These needs

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\* Health insurance is Kenko-hoken(健康保険) in Japanese and it is different from Medical insurance which is Iryo-hoken(医療保険)in Japan. Due to the system difference, Japanese does not have chance to choose health insurance by themselves.

are not created by society or by marketers. They exist in the very texture of human biology and the human condition.

*Wants* are desires for specific satisfiers of needs. Although people's needs are few, their wants are many. Human wants are continually shaped and reshaped by social forces and institutions, including churches, schools, families and business corporations.

*Demands* are wants for specific products that are backed by an ability and willingness to buy them. Wants become demands when supported by purchasing power.

In this paper, considering Kotler's definition of need, wants and demand as a base, and would like to set the definition of customer needs and customer demands, both for life insurance, as follows:

- Customer needs: a initial idea which customer feels necessary
- Customer demands: Customer needs which was finalised and customer has ability to buy.

The Customer needs, compare to customer demands are more vague and uncertain. Every time, it starts from 'Customer needs'. However, by reviewing it iteratively with the knowledge of insurance, what can insurance do and what cannot it do, it will become more clear and concrete. There might be a case where needs directly turn into demands or be able to find out that needs were equal to demands itself.

### 1.1.7. Shared context and communication

People understands each other by what they speak and listen. Although, even using same expression, usually the understanding varies by the listener.

Fischer (1995) tells that this communication breakdown happens because of the difference in shard context between the two actors, the speaker and listener. If they have more shared context, then the communication gap becomes smaller.

(Refer to figure 1)

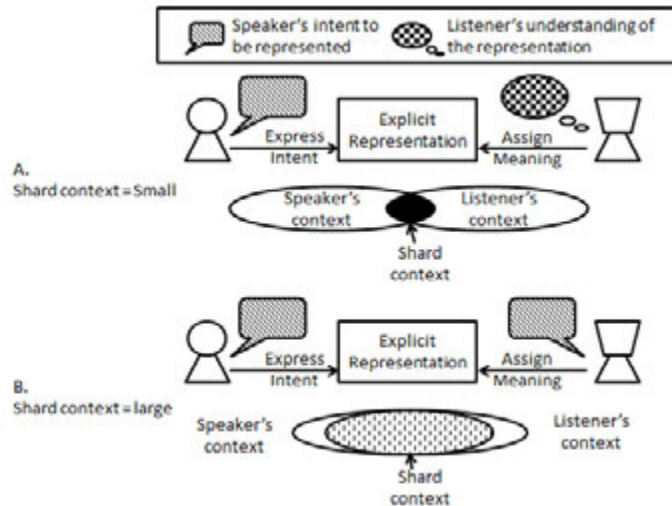


Figure 1 The Shard Context and communication of Intent in Design  
(Author have made modification of the figure by Fischer)

### 1.1.8. Three-dimensional architecture reference model

The Smart Grid Architecture Model which was established by Siemens Infrastructure & Cities has developed a method whereby power supply companies and industry can display aspects of smart grid systems. The model can be used for the visualization, validation, and configuration of smart grid projects, and for standardization within smart grids. (Siemens Press release, 2012) This figure is developed to share information and enable the discussion with the people from multiple entities with various point of view to decide the standard of Smart Grid system in Europe.

This structure of the model and the approach can be applied for cases which each layer interacts with the other layer as well as each elements and zones.

### 1.2. Contribution of This Work

As mentioned in the former section the life insurance company are now required to focus more on the customer needs for sales especially at the time of solicitation. Considering the JD power result as well as the change of the Insurance Business Law, it is clear that, how the proposal of insurance plan matches with each individual customer needs is also essential for life insurance company. However, the definition of customer needs from sales or solicitation point of view is not clear. Because of this, how life insurance company should

understand 'customer needs' of each individual customer at solicitation is not clear.

Based of the above, the objective of this research is the followings;

Customers can;

- Overlook the whole insurance as a system
- Comprehend the function of insurance structure and product
- Customer's own needs become tangible

### **1.3. Structure of this dissertation**

The rest of dissertation is structured as follows. Chapter 2 explains about insurance in general including the difference of public insurance and private life insurance and its relation. This is to help the understanding of the proposal which will be discussed in the following chapter. In Chapter 3, the Visualising model of Customer Demands Sufficiency Degree will be explained in detail and way of usage. Chapter 4 explains about the detail and result of the verification and validation of the model in 3 types of evaluation axes. And finally, the conclusion and future works in Chapter 5.



## 2. Current Japanese insurance system

The main purpose of the paper is not to discuss about insurance. However, it is necessary to have a basic information about insurance system in Japan to go through this paper. Therefore, I have summarized the information as below. As it is a summary, it may not have covered the details in depth or special cases.

### 2.1. Overview of insurance

In this section, the basic information of the insurance is explained including its definition and the concept. Some of the information may only be applicable for Japanese insurance, but mostly are general information about insurance which are applicable in other countries. This is because the essence of the insurance is common in any cases.

“Insurance may be defined as a system handling risk by combining many loss exposures, with the costs of the losses being shared by all of the participants”. (Crane, 1984)

Insurance is a system which has a function to prepare for financial risks such like loss or damages by paying in a premium in advance. The financial risk is something which its occurrence and size of the impact is unpredictable, but normally occur by loss or damage of something. The value and benefit of it are understood and can be calculated by the person or group who owns it. Therefore, the person who is aware of the value and benefit are afraid being impacted by the loss and damages use insurance to prepare for it.. That is the main reason which the private life insurance was developed, has spread widely across the world until now and still being playing important role.

The insurance system initially started off with mutual aid by the family, community or religious groups. Due to the development of probability theory and statistics, the insurance system and insurance company management was modernized. Especially the mortality rate based premium calculation lead the development of private life insurance.

Normally, the term ‘insurance’ is used to describe private life insurance or non-life insurance in Japan. The Social insurance is also part of ‘insurance’ but

normally private insurance and public insurance are discussed as a separate topic.

### 2.1.1. Social security and social insurance

Social security handles social hazard, which is unemployment, disease, death, disability and occupational accidents. Which is generally call as “risk” or “Social accidents”. The areas which social security handles varies across the age, country and it has a feature that it is decided by the custom more than in theory. But most importantly it is owned by the government. And it is for the people of the country as a welfare. However, the way to achieve the aim is diverse. Social security has a feature that to avoid misfortune.

The Social insurance is ideated as a mutual aid organization, introducing some of the private insurance techniques. The introduced techniques were 1) Risk predictability nor law of average, 2) Funding for benefit payment. (Washio, 2009) The Social security has 4 principals as listed below.

- i. Social insurance principal
- ii. Dependency principal
- iii. Social aid principal
- iv. Social benefit principal

### 2.1.2. Japanese social security

The Japanese social securities started around 1874 by submitting an act to care those who cannot work. The main objective of the act was to save those who cannot work after the war. Since then, it continuously expanded its target and services. Now days, social security had developed to include both social welfare and social insurance. The difference from the social welfare is that, social welfare is to help those who actually have faced problems in maintaining one’s life. It is a poor-relief system. On the other hand, social insurance is for to prevent the risk of poverty in advance.

The financial resources are mainly social insurance premium which is collected by payroll deduction separately from tax.

Social welfare targets, those who met the pre-defined conditions and does not ask the reason why they are facing the problem. Also, the standard of livelihood protection is defined which follows the principle of national minimum. Although,

mean test will be conducted to the entire candidate to confirm that the candidate is meeting the defined conditions or not. Where, social insurance targets only those who contributed on social insurance premium payment. This is based on the concept that social insurance targets to meet the actual level of living therefore the benefit amount differs by the salary amount and will be paid without examined by any kind of test.

The social security in Japan, has the below systems.

- Income security
  - i. Income support / Welfare
  - ii. Unemployment compensation
  - iii. Industrial incidents compensation insurance
  - iv. Public Annuity
- Social service
  - v. Medical security
  - vi. Elderly care insurance
  - vii. Child benefit

## 2.2. Private life insurance in Japan

The concept of private life insurance which was developed in United Kingdom was introduced by Yukichi Fukuzawa, the founder of Keio University, in 1867. And in 1881, the first life insurance company, Meiji Life Insurance (Current, Meiji Yasuda Life Insurance) was established by those who studied under Yukichi Fukuzawa. Before that, mutual aid type system did exist in Japan. Although it was based on relatives, community or religion groups to support each other and was very different from the current actuarial insurance business.

### 2.2.1. Current situation of Japanese Life insurance

Since the first life insurance company was established in Japan, the numbers of company have expanded to 41, including the foreign asset based life insurance company.

Japan is the second largest life insurance market following the US. (NLI Research Institute, 2011) The number of individual insurance policy has been slightly increasing eight years in row which total amount of insurance in-force are decreasing since 1996. (The Life Insurance association in Japan, 2016)

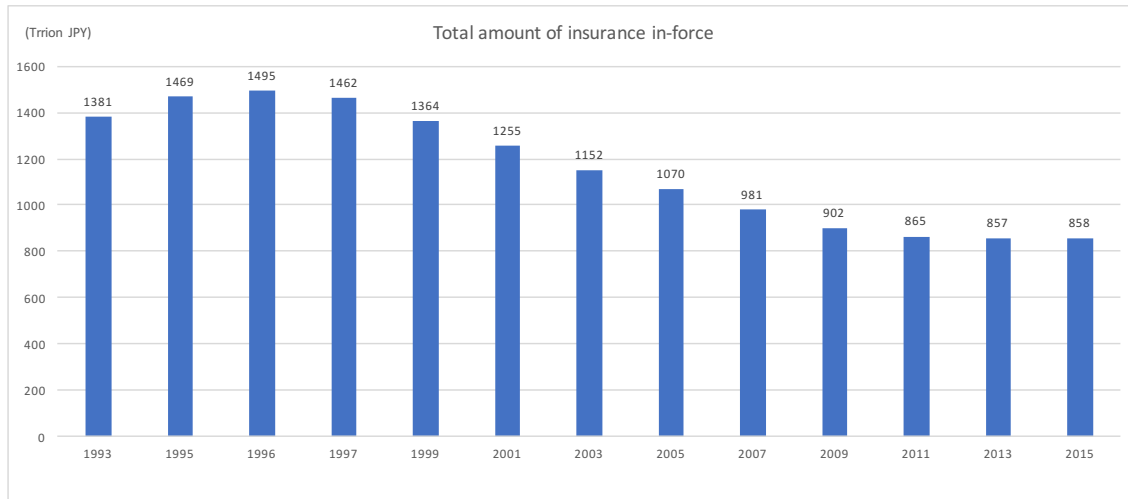


Figure 2 Total amount of insurance in-force

The penetration ratio of life insurance is 85.8% in 2012 and is the highest in the world. (The US : 70%, 2010, and UK : below 40%, 2008) (The Life Insurance association in Japan, 2016 and NLI Research Institute, 2011).

On the other hand, based on the research result which The Life Insurance association in Japan conducted shows that 37% of the policy holder are not sufficient with the current contract in 2012 which was 32.6% in 2009. The policy holder who thinks the contract is sufficient is 36.7% and 26.3% are unknown. This shows that approximately, 60% of the policy holder showing insufficient and might have a chance to review or revise their contract.

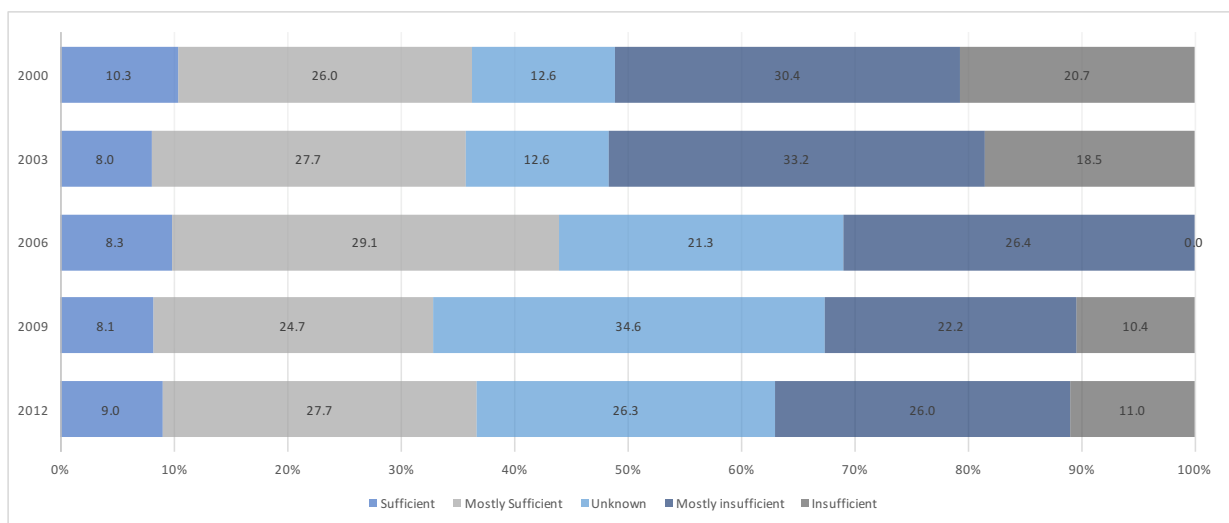


Figure 3 Sufficiency Degree of current policy coverage

The survey result which one of the internet dedicated life insurance company had conducted in 2008 shows interesting result.

The result was, 87.8% of the policy holder agrees about the uncertainty of the understanding of their own insurance contract. Also, 71.4% of them agrees that they are not satisfied with their insurance contract. The detail analysis of the result nor the existence of the case and effect relationship between the uncertainty of understanding and dissatisfaction is unclear from the result shown.

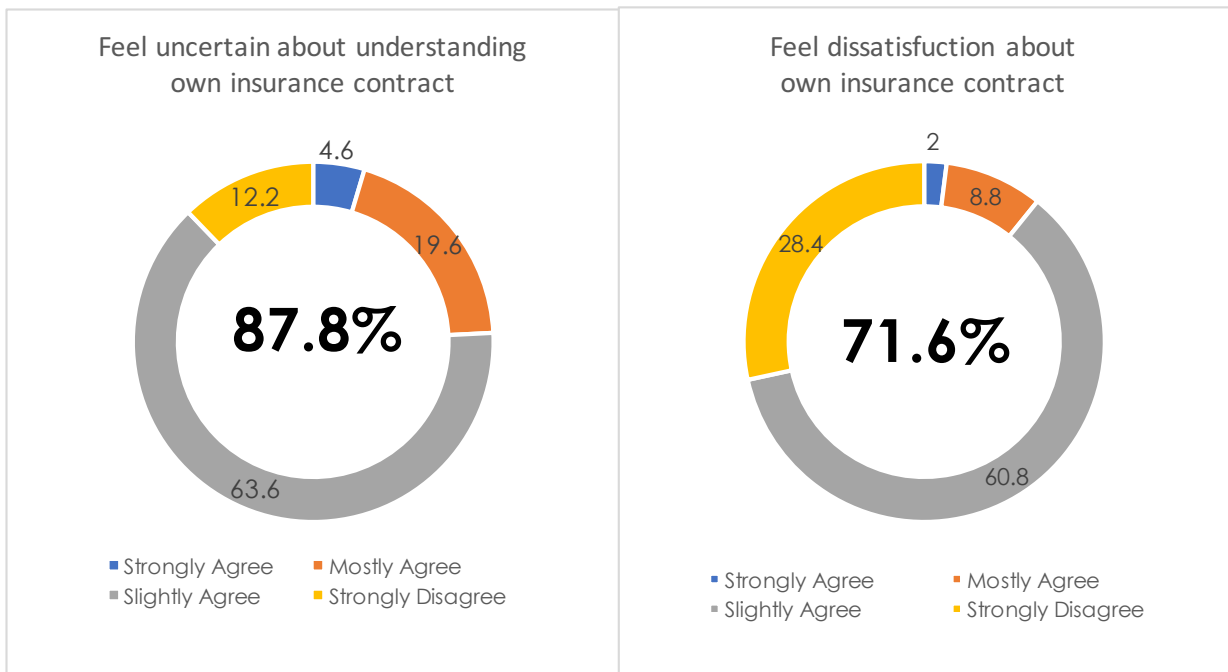


Figure 4 Survey result – 1 (Author created refereeing to Lifenet Insurance HP)

The points which policy holder feels uncertain about their insurance contract was also shown in figure 4. Mostly the was related to money of insurance. Most of the policy holder feeling that the balance of premium they pay in and the benefit they may earn in the future is the question. However, it is interesting that the uncertainty of the 'content of coverage is placed in the second as a reason. By overlooking all the elements, the possibility of the cause and effect relationship between premium or payment (which is money) and content of life insurance may seem to exist.

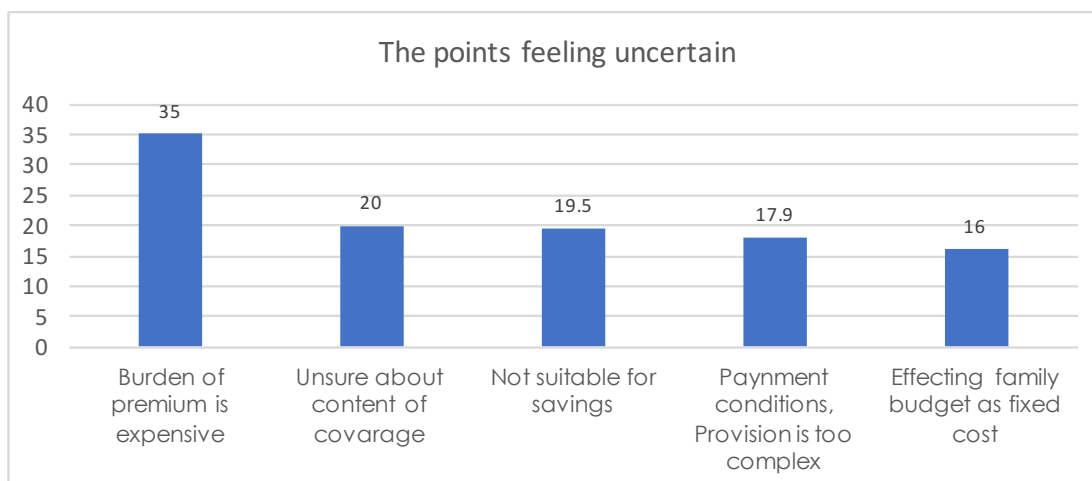


Figure 5 Survey result – 1 (Author created referring to Lifenet Insurance HP)

### 2.2.2. Sales channels of life insurance

Based on Deguchi and NLI Research Institute, the following six channel is the sales channel exist in Japan. (Have combined two different type of agencies into one in this paper)

i. Sales person

Sales person is not an employee of life insurance company but is dedicated to one life insurance company to sell their products. There were more than 0.6million sales person in 1990's but now it has shrink to 0.25 million by end of 2009. It is mostly women who was called 'Sales lady (of insurance)'.

ii. Life planner

It is a consultant type sales person who has broad and deep knowledge about finance and insurance. They also are dedicated to one life insurance company and they are mainly male salesmen as a comparison to sales person.

iii. Agency

This is a company which are dedicated to insurance sales only, where life insurance company makes the product and sale as one company. There are several types of agency which dedicated in products or the companies. Recently the agency which enables selecting a product from multiple insurance companies are becoming popular.

iv. Bank/Security firm/Post office

The deregulation taking steps since 2001, allowed banks, security firms and post office to sell life insurance products.

- v. **Direct marketing**  
This is a channel which life insurance company directly sells the insurance products to customer.
- vi. **Internet**  
It is a way to sell the product generally through life insurance companies special homepage dedicated for sales.

Even having multiple sales channel, it is still common to buy life insurance through the traditional way in Japan. In the survey, half of the percentage answered that they bought the contract though sales person, though they have a negative impression among the sales person as shown in the Figure 6.

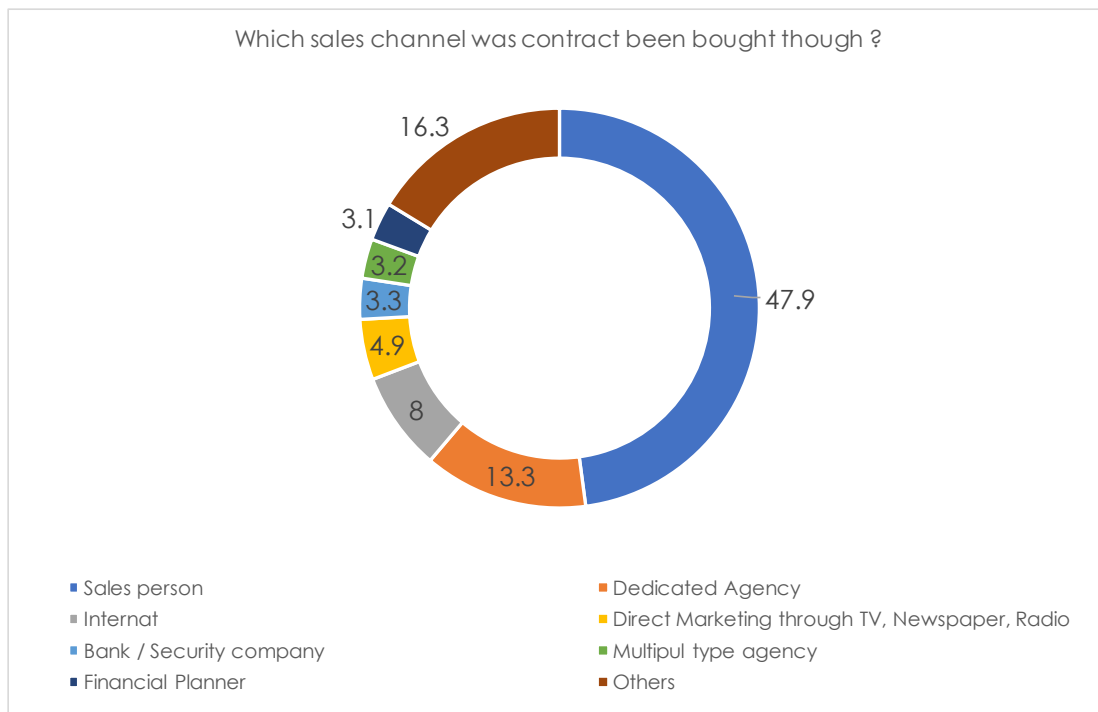


Figure 6 Sales channel the contract was bought (Author created referring to Lifenet Insurance HP)

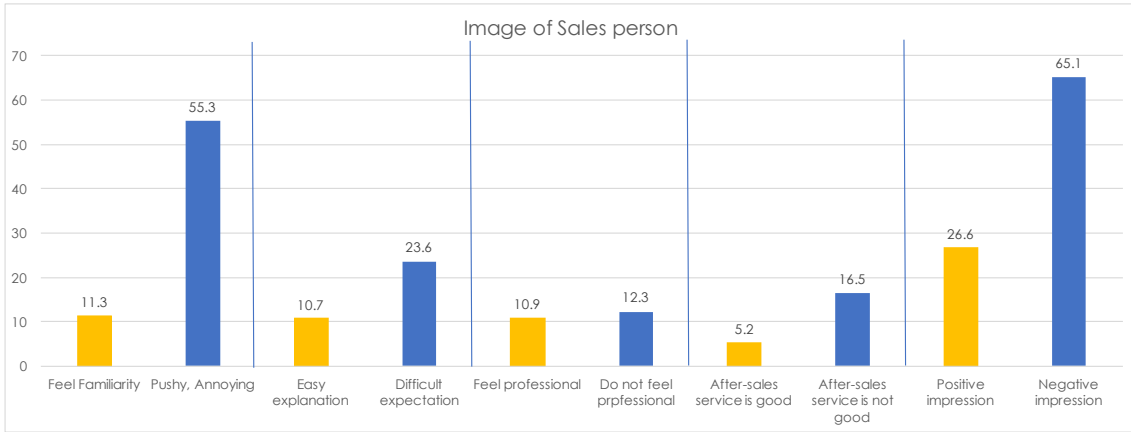


Figure 7 Image of the Sales person (Author created referring to Lifenet Insurance HP))



### 3. Proposal of Visualising model of Customer Demands

#### Sufficiency Degree

In this section, the visualising model of customer demands sufficiency degree for designing private life insurance will be explained as a proposal for the customer who has a demand of buying life insurance. This model enables customer to;

- Understands the function of insurance product.
- Overlook the whole insurance as a system
- Customer's own needs become tangible

The explanation of this model will be conducted applying Japanese life insurance.

#### 3.1. What is visualising model of customer demands sufficiency degree?

The Visualising Model of Customer Demand Sufficiency Degree (VMCDSD) is a three-dimensional map describes insurance as a system showing how insurance is structured as well as how the elements of insurance are fulfilling customer demands. The elements of customer demands, public social security institution, private life and non-life insurance appears as where financial risk and stage of health condition intersects.

##### i. Customer demands

As mentioned in the Introduction section, need is a state of deprivation of some basic satisfaction, Wants are desires for specific satisfiers of needs.

Demands are wants for specific products that are backed by an ability and willingness to buy them. (Kotler, XXXX) And the model is trying to show how it is fulfilling what is required for the insurance by the customer to support their requirement therefore it is appropriate to name the model using 'Customer demands' in this paper.

##### ii. Sufficiency Degree

To understand whether the customer demands are fulfilled or not or how much it is fulfilled and how much not, will be shown as a 'Sufficiency degree' in this model. It is different from satisfaction degree in which satisfaction is the fulfilment of emotion.

### iii. Visualising Model

Insurance is a legal contract which is physically invisible. Normally, for something invisible people compensate with imagination. However, imaginary life insurance may differ in features, functions and what it brings as a benefit by each individual. And its difference cannot be checked as imagination also is invisible. This has a possibility to lead to the misunderstanding of life insurance. Therefore, not only structuring it but also visualising it as a structure brings huge benefit on understanding insurance.

Following is the description of the feature of life insurance by the Financial Services Agency,

One of the service which human five senses cannot be aware of. An engagement of benefit which cannot be seen, will only be mentioned in the provisions. It has a feature, that it requires applying for beneficially payment when payment activity take place, to know it's quality, ability for the first time. (2005)\*

## 3.2. Objective and benefit

### 3.2.1. Objective

The purpose of the model, VMCDSD is to structure the insurance as a model. It was mentioned in the explanation of 'Visualising model', again, insurance is a legal contract and it is invisible. It does not have physical substance which people can touch and feel what it can do to peoples live with it. Therefore, people who buy it, sell it or even talks about it makes own images on their own when they are speaking about it or even thinking about it. Image also does not have physical substance. Even using the same terms and definitions, there is a possibility of people speaking or imaging something could be totally different.

---

\*人間の五感で感知できないサービスの一種で「目に見えない給付の約束が約款に記載されるのみであり、支払事由が生じて実際に保険金請求手続きをとることにより初めてその品質・性能を知りうるものであること」という特性がある。金融庁(2005),「中間論点整理-保険商品の販売・勧誘時における情報提供のあり方-」。

By this, the misunderstanding of life insurance may happen to the customer. The visualization is one of the answer to prevent this misunderstanding happening by sharing the visual images.

### 3.2.2. Benefits

As the VMCDSD includes all kinds of insurance types, 'public and private', 'life and non-life (General or Property and Casualty)' as a layer, the model enables the customer or the user to understand the relationship between the different insurance types. Also, all the element which structuralise the insurance system are in one, it enables to overlook the system as whole from various point of view. This will help to understand the insurance from the high level to detail and from the detail to high level. And also, more than two people are talking about life insurance for instance. When sales person is explaining about life insurance to customer, misunderstanding might occur. This has appeared as a result of survey that 20% of the people are feeling uncertain about their own life insurance contract,

### 3.2.3. Constrains

The model has a constrains from it's design point of view that it only able to reflect the insurance model of one country as a maximum. It can be created in much smaller entities such like per types of social security institutions, or per enterprise or any sort of groups which will not exceed one country. This constrains is due to characteristic of the information that are shown in the public social security layer.

## 3.3. Structure of visualising model of customer demands sufficiency degree(VMCDSD)

In this section the detail of Visualising Model of Customer Demand Sufficiency Degree (VMCDSD) will be explained from the visual design point of view., Followed by the definition of each components, explanation of proposal of usage, and what can be done and brought as a benefit by using the model.

### 3.3.1. Design

The VMCDSD is a model which has three axes that each axis represents three different viewpoints which insurance has as an element. (See Figure 7) From this, the design of the three-dimensional structure brought as the most appropriate way to describe insurance represents as a visual image. This visualised image represents the essence of insurance.

The three axes are: (See Figure 8)

- i. X: Financial Risk
- ii. Y: Stage of health condition
- iii. Z: Architecture of insurance

Not only the model itself but each layer in the X axis (Stage of health condition), also has three-dimensional structure and consist with the followings.

- i. Vertical: Stage of health condition
- ii. Horizontal: Financial Risk
- iii. Height: coverage amount.

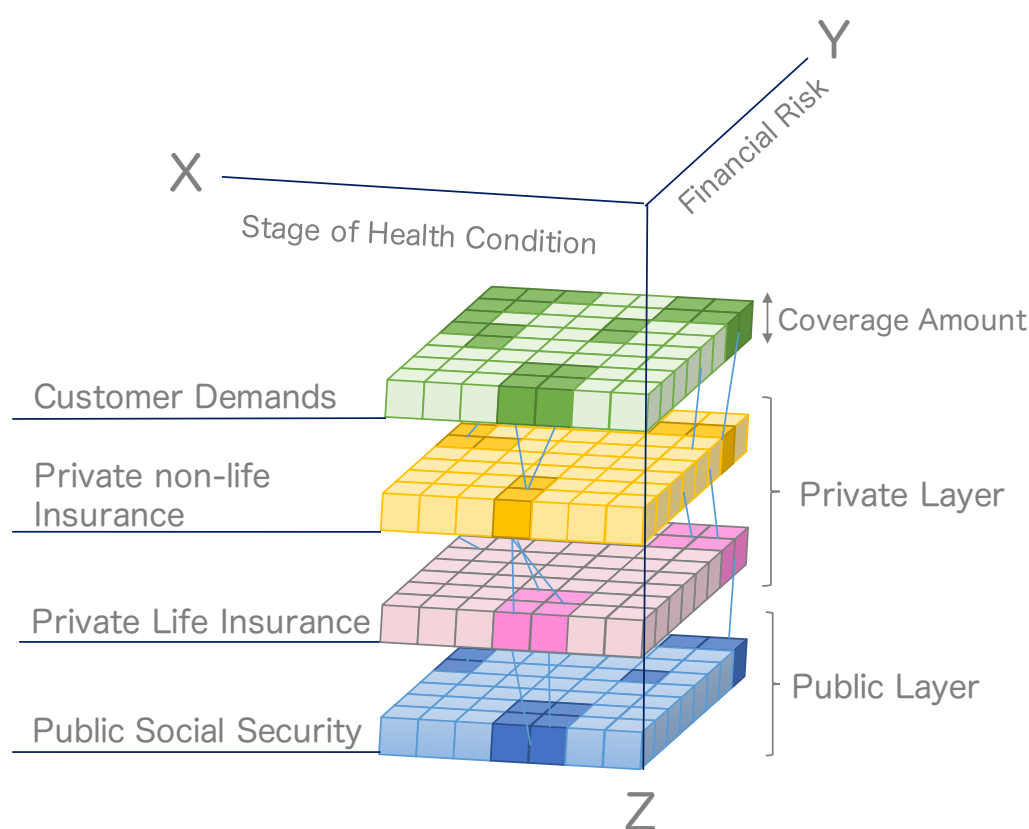


Figure 8 Visualising Model of Customer Demands Sufficiency Degree

### 3.3.2. XYZ Axes

Below figure shows the XYZ axes of the model.

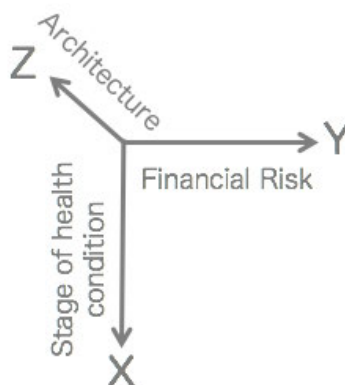


Figure 9 XYZ Axes

#### 3.3.2.1. Axis 1 – Z: Architecture of insurance

The architecture axis which is X axis in the three-dimensional model, shows how insurance concept is structured as a layer. It contains public social security layer, private life and non-life insurance layers and customer demands layer from the bottom to the top.

##### (1) Public social security layer

The layer located in the bottom is the layer for public social security of one country. This layer represents the function and features of public social security which one country has a institution,

It is designed to show only one public social security institution per single layer. Even if multiple type of public social security layer exists, the model will have only one layer at a time. If multiple type of social security institution exists in one country, then the multiple layer should be created and each should be stated as individual model. This is because, the public social security is a benefit which is provided equally throughout the nation for people's care in general. Therefore, it has become the base to define the unit of the model.

When multiple model exists then the one which public social security layer that one person or the unit that you are considering belong to must be chosen as the one to apply.

## (2) Private life insurance layer

This layer shows what kind of product is provided from life insurance companies in one country.

Alike the public social security layer, the maximum of this layer is also one country, as the law and regulation is strictly controlling life insurance companies and products in the market. Therefore, it must not exceed one country when creating the model.

The difference of the insurance company does not matter as all the companies which categorised under same insurance category are controlled by same law and regulations. Although, depending on the purpose of creating the model, it can be limited to only contain the information of one company maximum in one layer.

It will become a useful to compare the difference of the product when the information of multiple companies appears in one.

## (3) Private non-life insurance layer

This layer is alike Private life insurance layer but shows what kind of product is provided by the general insurance companies in one country.

Also, alike the public social security and private life insurance layer, the maximum of this layer also is one country, as the law and regulation is strictly controlling general insurance companies and products in the market. Therefore, the limitation must not exceed one country when creating the model.

The difference of the company does not matter as all the companies which categorised under same insurance category are controlled by same law and regulations.

Although, as like life insurance it has same constraints, that depending on the purpose of the model creation, it can be limited to only contain information of one company in one layer.

## (4) Customer demands

On the top of the VMCDSD, customer demands layer exists.

It is a layer designed to shows how much benefit is required for each area from customer point of view.

It can reflect demands of each individual's but also can be created as a sample which reflects the model case.

### 3.3.2.2. Axis 2 – Y: Stage of health condition

The Y axis of the model represents the time. In VMCDSD it shows the stage of health condition of human. Each stage was derived as an elements of health condition from considering human as a system and applying system life cycle concept. The trigger of paying the benefit from insurance company and institution was put in consideration.

Each stage is:

- i. Healthy
- ii. Not feeling well
- iii. Being diagnosed
- iv. Surgery
- v. Hospitalised
- vi. Home remedy
- vii. Elderly care
- viii. Death

Refer to the below for the definition of each stages. Some of the definition might not follow the general understanding as it has been slightly retrofitted to meet this model. It also may not meet some of the medical insurance products terms and conditions as those differs per each individual product. The appropriateness of the definition has been confirmed during the interview with the life insurance expert.

Table 1 Definition of Stage of health condition

#	Items	Definition
i	Healthy	Having good health and not in sick condition
ii	Not feeling well	Yet being diagnosed but not feeling healthy without clear reasons including mental and emotional problems. i.e. under the weather, not motivated etc.
iii	Being diagnosed	The cause of the illness or problem has been identified and given by the doctor or medical institution. Mental sickness is excluded.

#	Items	Definition
iv	Surgery	Taken a surgery to treat the illness. (Taking surgery is one of the condition required for the benefit payment for medical insurance in Japan)
v	Hospitalised	Be hospitalised to treat the illness including hospice*. (Normally, taking surgery is one of the condition required for the hospitalisation benefit payment for medical insurance in Japan. Recently, there are products which does not require taking surgery also exists.)
vi	Home remedy	Receiving a medical treatment at home. May attend a hospital regularly as an outpatient, or prescribe a medicine. A condition which treatment that requires hospitalization is over but yet ready to go back to work.
vii	Elderly care	A special care required due to attaining an advanced age.
viii	Death	End of life

### 3.3.2.3. Axis 3 – X: Financial risk

This axis represents the financial risk which people may encounter during their life. The timing of its occurrence depends on each individual. For instance, some person, some of the risk may not happen, but for others it may happen multiple times. Or, for some of them only few of the risk may happen but others may encounter entire risks, how people should prepare and how much they should prepare for depends on one's situation, environment, social status and other elements.

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\* The benefit payment depends on the type of hospice. If it is defined as a medical institution based on Japanese's law, then it will be paid but if it is categorised as nursing care home then it is applied for elderly care benefit.



The draft version of financial risk items list has been reviewed during by the interview with the expert and have found out that the draft version is not able to reflect investment type private insurance product. Taking this comment into consideration and the list has been expanded to eight items including the original four items. Also, the categories of the item have been revised to apply the changes.

Table 2 Definition of Financial risk - Draft

#	Items			Definition
i	The timing of occurrence is unpredictable	For oneself (Insured)	Treatment Cost	A treatment cost while insured is ill and requires treatment.
ii			Cost of living	Cost for living for insured while oneself is ill and requires treatment. i.e. House rent, energy bills, phone and mobile fee etc.
iii		For family of oneself (Oneself is excluded)	Cost of living while insured is under treatment	Cost for living for families while insured is ill and requires treatment. (Assuming insured supports family budget) i.e. House rent, energy bills phone and mobile fee, cost for meals etc.
iv			Cost of living after insured's death	Cost for living for families after insured has died. (Assuming insured supported family budget while in life and after) i.e. House rent, energy bills phone and mobile fee, cost for meals etc.

#	Items			Definition
v	The timing of occurrence is predictable	For oneself (Insured)	Reserve for old age	The assets for cost of living and others after retirement.
vi			Asset formation	The assets which oneself would require to increase.
vii		For family of oneself (Oneself is excluded)	Education	The educational cost for the family which one must prepare in advance.
viii			Inheritance succession	The succession tax at the inheritance.

### 3.4. Matrix – The combination of Axis X and Y

The matrix is part of each layer which shows the result of multiplying axis X: Financial Risk and axis Y: Stage of health condition. The coverage amount is not presented in the matrix as this is two-dimensional model. Once the coverage amount is added to the matrix, then it'll become the three-dimensional model, however still it is inside the Visualising model of customer demands sufficiency degree.

The insurance services will appear in the matrix where X: Financial Risk and axis Y: Stage of health condition intersects. It shows what kind of support the service is providing for what financial risk to be supported and at what stage of health condition that people are in or encountering.

In this section, the Japanese public social insurance and private life insurance are used for the samples unless otherwise specified.

Refer to section 3.3.2.2 and 3.3.2.3 for the definition of each items in the matrix. The sample image of the matrix looks like the following.

	Treatment cost	Cost of living - Insured	Cost of living - Family	Cost of living - Family	Reserve for old age	Asset formation	Education	Inheritance succession
Death								
Eldery Care								
Home remedy								
Hospitalized								
Surgery								
Being diagnosed								
Not feeling well								
Healthy								

Figure 10 Sample image of VMCDSD matrix - template

### 3.4.1. Applying axis Z: Architecture of insurance to matrix

Applying the three layers of the architecture of insurance to the matrix gives you an image which you overlook each architecture layer from above.

By seeing the matrix per layer, will helps to understand more about insurance, such like, what kind of insurance support are available and when you can ask for the support to use it.

The sample of each layer were created using the general information of insurance service and not reflecting specific condition, such like constraints or regulations that may be required per each service. This was because controlling the abstract level of the information per layer and the architecture axis was important to compare what is provided as a service.

The cells which does not have any institutions or products will be shown as 'N/A' as it does not have anything to represents.

#### 3.4.1.1. Public social security layer

In this layer, the information of what social security institutions are generally available to the tax payers are placed in the cells depending on what financial risk and stage of health conditions it will be available.

	Treatment cost	Cost of living - Insured	Cost of living - Family	Cost of living - Family	Reserve for old age	Asset formation	Education	Inheritance succession
Death	-	-	-	Surviver pension				
Eldery Care	Public Eldery care	N/A	N/A	-	-	-	-	-
Home remedy	N/A	Public Disability allowance Public pension plan Unemployment compensation Welfare	N/A	-	-	-	-	-
Hospitalized	Public health care High-cost medical care benefit	N/A	N/A	-	-	-	-	-
Surgery	Public health care High-cost medical care benefit	N/A	N/A	-	-	-	-	-
Being diagnosed	N/A	N/A	N/A	-	-	-	-	-
Not feeling well	N/A	N/A	N/A	-	-	-	-	-
Healthy	N/A	N/A	N/A	-	Public Pension Plan	-	-	-

Figure 11 Sample image of VMCDSD matrix - public

### 3.4.1.2. Private life insurance layer

This layer will show you what private life insurance products are generally available in the market. The abstract level is controlled to represents the life insurance product sold in Japanese market in general.

	Treatment cost	Cost of living - Insured	Cost of living - Family	Cost of living - Family	Reserve for old age	Asset formation	Education	Inheritance succession
Death	-	-	-	Mortality insurance Endowment policy Whole life insurance	Fixed Annuity Fixed /Variable Annuity	Variable Annuity	Juvenile Insurance	Variable Annuity
Eldery Care	Private Eldery care	N/A	N/A	-	-	-	-	-
Home remedy	N/A	Private Disability income	N/A	-	-	-	-	-
Hospitalized	Medical insurance Specified disease insurance	N/A	N/A	-	-	-	-	-
Surgery	Medical insurance Specified disease insurance	N/A	N/A	-	-	-	-	-
Being diagnosed	Cancer insurance	N/A	N/A	-	-	-	-	-
Not feeling well	N/A	N/A	N/A	-	-	-	-	-
Healthy	N/A	N/A	N/A	-	Old-age Insurance Fixed / Group Annuity Fixed /Variable Annuity	Variable Annuity	Juvenile Insurance Educational endowment	-

Figure 12 Sample image of VMCDSD matrix - private

### 3.4.1.3. The combination of public social security and private life insurance

By combining the two layers, you will be able to know how public social insurance and private life insurance are supporting people's life. Normally, life insurance is designed to either supplement or complement the social services. From the sample, it is obvious that current Japanese private life insurance products are only supplemental of public social insurance institutions.

	Treatment cost	Cost of living - Insured	Cost of living - Family	Cost of living - Family	Reserve for old age	Asset formation	Education	Inheritance succession
Death	-	-	-	Surviver pension Mortality insurance Endowment policy Whole life insurance	Fixed Annuity Fixed /Variable Annuity	Variable Annuity	Juvenile Insurance	Variable Annuity
Eldery Care	Public Eldery care Private Eldery care	N/A	N/A	-	-	-	-	-
Home remedy	N/A	Public Disability allowance Public pension plan Unemployment compensation Welfare Private Disability income	N/A	-	-	-	-	-
Hospitalized	Public health care High-cost medical care benefit Medical insurance Specified disease insurance	N/A	N/A	-	-	-	-	-
Surgery	Public health care High-cost medical care benefit Medical insurance Specified disease insurance	N/A	N/A	-	-	-	-	-
Being diagnosed	Cancer insurance	N/A	N/A	-	-	-	-	-
Not feeling well	N/A	N/A	N/A	-	-	-	-	-
Healthy	N/A	N/A	N/A	-	Public Pension Plan Old-age Insurance Fixed / Group Annuity Fixed /Variable Annuity	Variable Annuity	Juvenile Insurance Educational endowment	-

Figure 13 Sample image of VMCDSD matrix – public and private

Blue: Public social security

Red: Private life insurance

Highlight in purple: Both public social insurance and private life insurance exists

### 3.5. How to use the model

The model does not just represent the structure of insurance but it also provides more ways and information to understand how each architecture layers interacts with others.

The biggest feature of the VMCDSD is that each layer can be subtracted by other layers. For example, subtracting Public social security layer from the customer demands layer, then the result will show the coverage amount which will not be covered by public social security that oneself must prepare on its own.

The subtraction can be done using any layers and can be subtracted from any layers. All the layers can be used for the subtraction and can limit the layers used for the subtraction.

To do this, firstly, the layers with information of how much coverage amount is required for each area which axis X: Financial Risk and axis Y: Stage of health condition intersects, must be created. This means that three-dimensional layer image for each architecture layers must be created which reflects actual public social security institution and private life/non-life insurance products availabilities. The customer demands layer must be prepared as well, however, it can be created using some existing model case or can be the one created for actual individuals as a sample.

### 3.6. What can be done using the model?

In this section, the way to make use of the VMCDSD will be introduced.

#### 3.6.1. Individual customer demands

The refined individual customer demands can be visualized for reviewing own demands by themselves.

For example, visualizing individual customer demands of life insurance, the procedure is as follows and all layers will be used. Assuming the coverage amount for all layers are set in advance. Customer demands layer can be customised to reflect the personal situation of the user.

**Step1:** [Customer demands] minus [Public social security] = Areas which customer demands to be covered by oneself

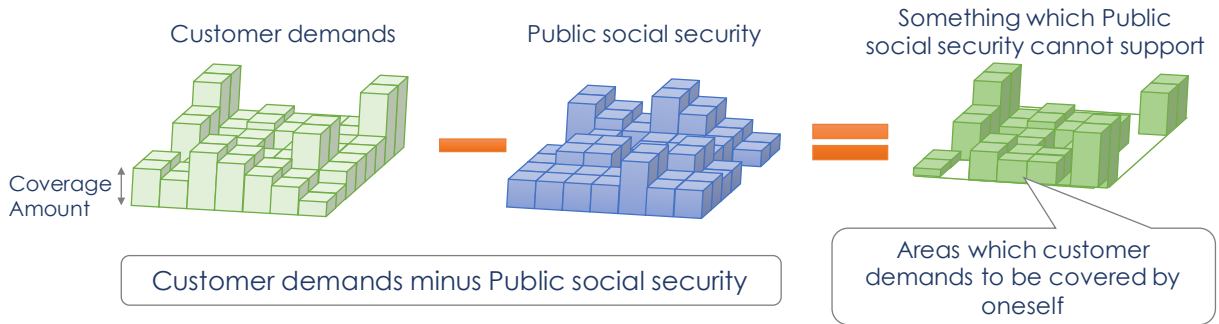


Figure 14 How to use the VMCDSD - Step1

Through this process, people will know ‘what can public social security can do to support people’s life’ and ‘what it cannot do’. Which means this deduction process visualise the function of public social insurance.

**Step2:** [Areas which customer demands to be covered by oneself] minus [Private life/non-life insurance] = Areas which existing insurance cannot support

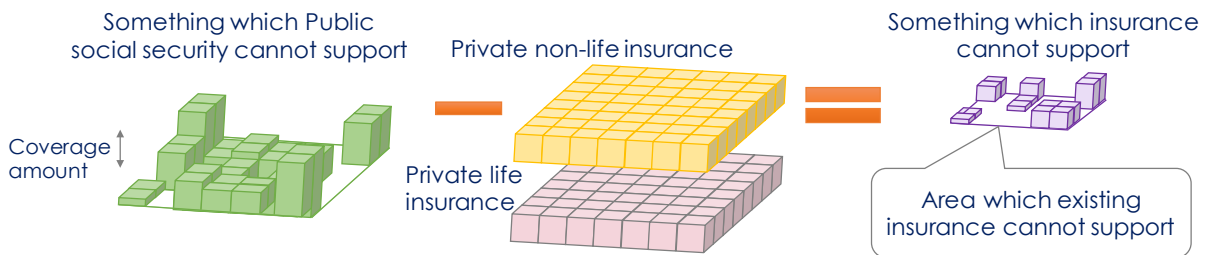


Figure 15 How to use the VMCDSD – Step2

Also, by going through Step2 process people can understand ‘what can private life/non-life insurance products do to support people’s financial risk’ and what it cannot support.

By completing these steps, it allows the people to go through and get knowledge of what kind of public social security is available and what kind of financial support people can get by having a contract of private life and non-life insurance in general. It shows the function of public social security and private

life insurance. Then going back to the customer demands with the basic knowledge of insurance to review what they initially thought as their ‘demands’ are actually showing what they really need or not. Once the user thinks the customer demands are fixed then as a next step they can start choosing the private life and non-life insurance to fulfil their demands. In some case user’s may find that their demands may not be met by the existing public social insurance and private insurance products. In such cases, they should take different solutions other than insurance to fulfil their demands or going back again to their customer demands and review it again.

This review process can happen multiple times as a iterative process until the user are satisfied of the outcome.

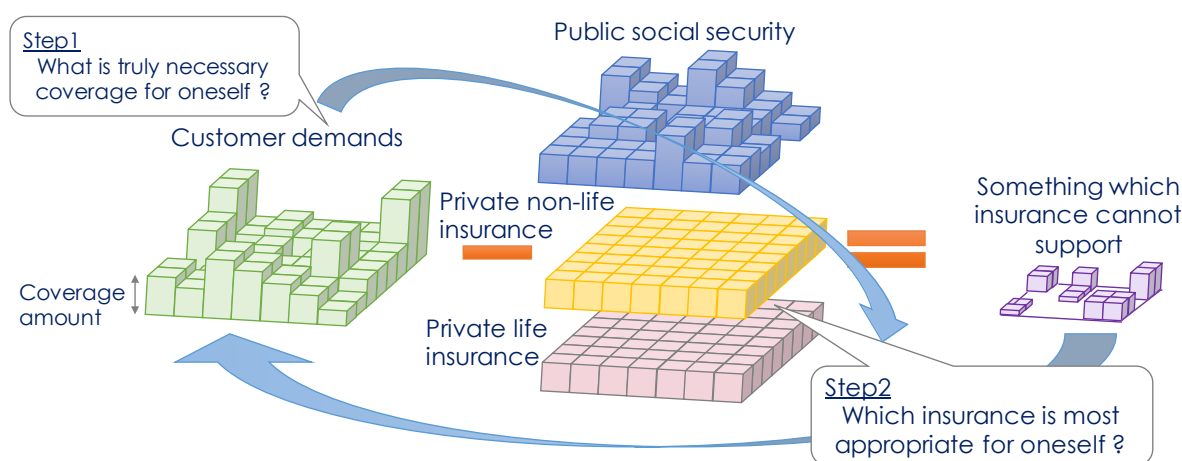


Figure 16 How to use the VMCDSD - iteration

### 3.6.2. White space – New products based on customer demands

The subtraction of public social insurance and private life or non-life insurance from the customer demands layer will reveal what is required by the consumer but are currently not available in the market or in one company.

This may give a different type of insight or logical understanding to current new product creation process in both life and non-life insurance.

For the example of this case, both private life and non-life insurance layer may reflect the general products in the market or can be customised to show the product sold at particular companies.

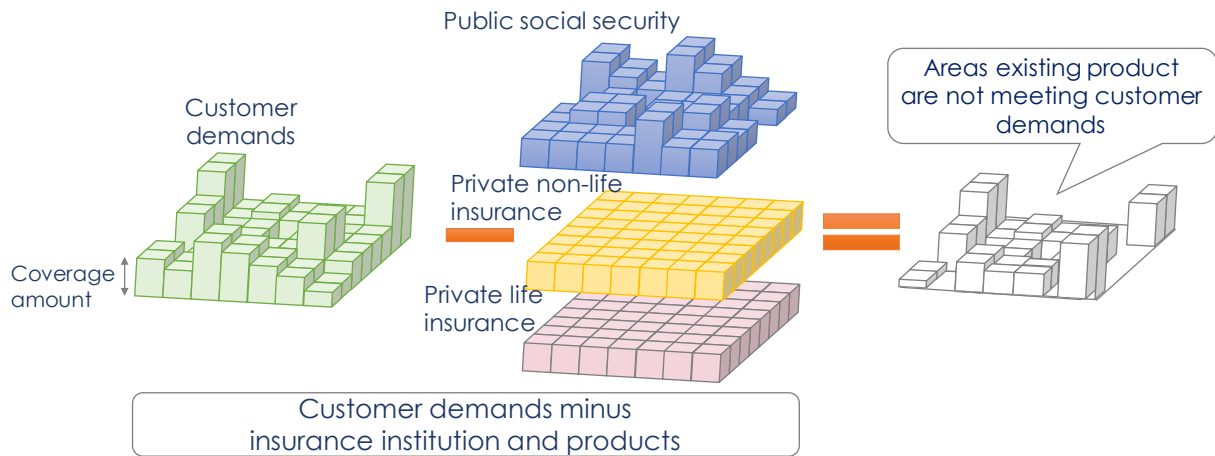


Figure 17 New products based on customer demands

### 3.6.3. Applying for overseas / Oversea expansion of Japanese insurance products

By changing the focus from one country to another, all the instance will change. The public social insurance institution of one country differs from other countries, then the private life and non-life insurance product follows as it's characteristic of insurance. Therefore, the calculation made for one country may not become the same result for other country.

This model also can be used to compare and find out the difference between each country's public social insurance institution.

As it can visualise the areas which current product are not fulfilling customer demands, it tells you that Japanese life or non-life insurance company can tackle by exporting Japanese product in some of the areas. This is following the way that life insurance company in US done in 1970's when they started selling Cancer insurance product.



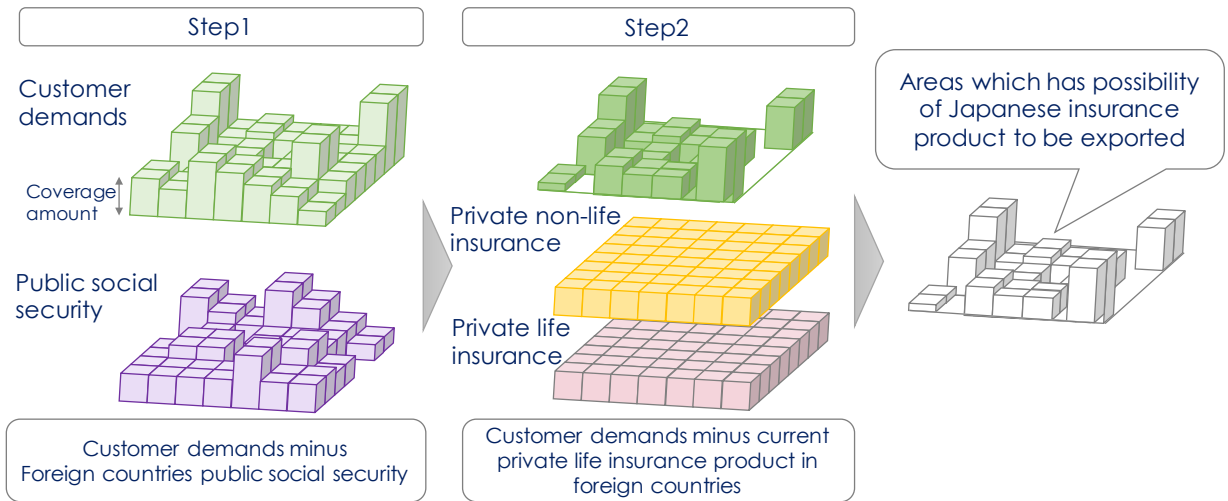


Figure 18 Oversea expansion of Japanese insurance products

## 4. Evaluation

In this section, the way how Visualising model of customer demands sufficiency degree was evaluated and its result is mentioned.

### 4.1. Architecture of Evaluation

The evaluation of the model including the matrix was carried out using the followings, to measure it from both qualitative and quantitative point of view.

- Two types of interviews
  - Professional
  - Specialist
- Workshops in Japan with questionnaire

The objective and the axes of evaluation is to confirm the followings,

- A) Both model & matrix has comprehensibility among the insurance structure and life insurance products.
- B) Generalising customer demands using the model and matrix.
- C) The appropriateness of the model and matrix

Each objective is evaluated by the following approaches.

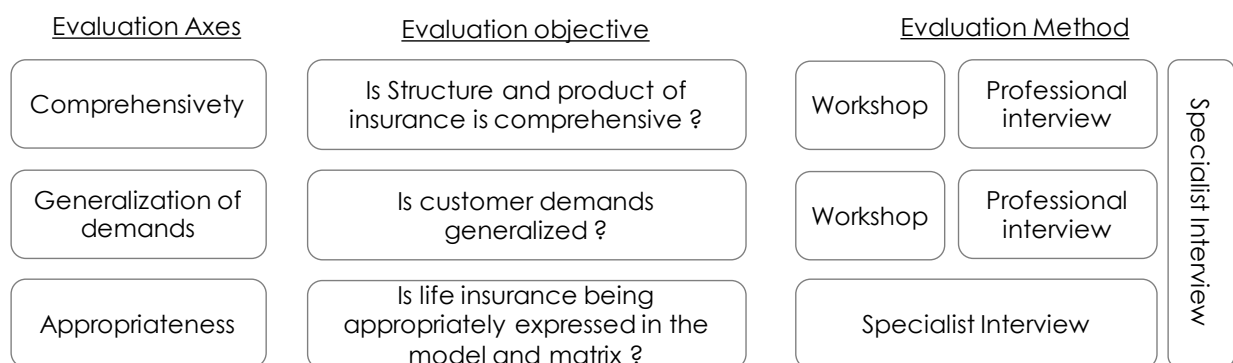


Figure 19 Evaluation architecture image

### 4.2. Evaluation method

In this section, the details of the methods and procedures of the evaluation will be explained in the following order that shows the order of the evaluation is conducted.

- i. The interviews to the professionals
- ii. Workshop
- iii. The interview to the specialist

#### 4.2.1. Interviews to the professionals

In this section, the details of the interview to the professionals is described including its aim and how it was conducted.

##### 4.2.1.1. Objective

The objective of the interview was to confirm the comprehensibility of the model and matrix from the multiple view point by the life insurance professionals. Also, to confirm the appropriateness of the structure of the model and each item on the field of the matrix was aim of the interview.

##### 4.2.1.2. Target Interviewee and selecting criteria

###### Target Interviewees

The target interviewees were chosen based on the following criteria;

1. Has more than 10years of working experience at life insurance company or companies
2. Was in-charge of Sales and/or back office operation.  
Sales: a. Sales person for Individual contract  
b. Key account manager for bancassurance\*\*

- Back office: a. New business assessment  
b. Claim benefit assessment

###### Characteristics of Interviewee's

Table 3 Characteristic of the Interviewee's (Interviews to the professionals)

1	Interviewee A	Sales person for Individual contract. MDRT†* Qualifying member for 5 years on row.
2	Interviewee B	Key account manager for bancassurance

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\* Bankassuarance : The selling of life assurance and other insurance products and services by banking institutions. (<https://en.oxforddictionaries.com/definition/bancassurance>)

† MDRT : The Premier Association of Financial Professionals®, is a global, independent association of more than 49,500 of the world's leading life insurance and financial services professionals from more than 500 companies in 70 countries. MDRT members demonstrate exceptional professional knowledge, strict ethical conduct and outstanding client service. (<https://www.mdrt.org>)

3	Interviewee C	Former Key account manager for bancassurance and Claim benefit assessment department manager.
4	Interviewee D	Former New business assessment department manager.

#### 4.2.1.3. Procedure of the interview

The interview was conducted in two steps.

Step1. Explanation of the model and the matrix.

Step2. Interviews with interviewee A to D, separately.

**Step1:** The explanation was done using a PowerPoints slides including the model and matrix images, (Refer to the appendix) which took approximately 15mins. The matrix used for the explanation to the interviewee contained Japanese public social insurance and private life insurance information as a sample.

**Step2:** The interview started from asking the overall impression of the model followed by the below questions.

1. The appropriateness of the model and matrix
2. Will this model and matrix be used at insurance solicitation?
3. The most suitable type of person to use this model and matrix.
4. The most suitable situation to use this model and matrix
5. Will insurance company be interested if this concept become an application to be used at insurance solicitation?

#### 4.2.2. Interviews to the specialist

In this section, the detail of the interview to the specialist are described.

##### 4.2.2.1. Objective

The main objective of the interview was as same to the professional interviews and workshop, to confirm the understandability of the model and matrix. However, not only to confirm the appropriateness of the model and matrix from the specialist point of view but to from much wider and various point of view including both good points and concerns was also the aim.

#### 4.2.2.2. Target Interviewee and selecting criteria

##### **Target Interviewees**

The target interviewees were chosen based on the following criteria;

1. Does not have to have actual working experience in life insurance company or companies but has been worked as close environment.
2. Has deep understanding and wide knowledge about life insurance as a business.

##### **Characteristics of Interviewee's**

The interviewee has working experience at Financial Services Agency in Japan which is the competent authorities of Japanese life insurance companies. He was in-charge of an authorization process to launch Japan's first internet transaction dedicated life insurance company. This was the first independent life insurance company permission for 74 years in Japan.

#### 4.2.2.3. Procedure of the interview

The interview was conducted in two steps.

- Step1. Explanation of the model and the matrix.
- Step2. Interviews with interviewee.

**Step1:** As same to the professional interviews the explanation was done using a PowerPoints slides including the model and matrix images, (Refer to the appendix) which took approximately 10mins. The matrix used for the explanation to the interviewee contained Japanese public social insurance and private life insurance information as a sample.

**Step2:** The interview started from asking the overall impression of the model followed by the below questions.

1. The appropriateness of the model and matrix
2. The comprehensibility of the model and matrix
3. The impression if this model and matrix used at insurance solicitation?
4. Is this meeting the requirement as the competent authorities?
5. Will the model and matrix be a help for oversea expansion of Japanese life insurance company

### 4.2.3. Workshop

In this section, the details of the workshop is described.

#### 4.2.3.1. Objective

The main objective of the workshop was to confirm the comprehensibility of the model and matrix to those who are not familiar to insurance compare to the professionals. The workshop was conducted in the following order, 1) a brief explanation of insurance, and 2) explanation of model and matrix. The reason that explanation of insurance was added was because basic insurance knowledge is required to understand the model and matrix was found out during the pre-verification. The interviews were targeting the expert who has working experience at life insurance company therefore the explanation of life insurance was not required.

#### 4.2.3.2. Target participants and selecting criteria

##### **Target participants**

The target participants were chosen based on the following criteria to get the result from varieties of people in means of general knowledge of insurance;

1. Life insurance background: Does not have working experience at life insurance company
2. Working experience
  - i. Has working experience
  - ii. Does not have working experience
3. Life insurance status
  - i. Life insurance contract holder
  - ii. Does not have life insurance contract

#### 4.2.3.3. Procedure of workshop

The workshop was conducted following the below steps.

Step1. Answering Pre-questionnaire

Step2. Brief explanation of insurance and explanation of the model and the matrix.

Step3. Examine individually through Test 1

Step4. Examine in pairs through Test 2

Step5. Answer Post questionnaire

**Step1:** The Pre-questionnaire includes following questions.

- i. Demographic questions that asked about age, gender, marital status, work experience. (4 questions)
- ii. Questions to see the understanding of insurance in general. (5 questions)

**Step2:** The PowerPoint slides used for the explanation including two sections. First section is brief explanation of insurance in general such like the definition and difference of insurance in various point of view. Second section is the model and matrix images which was used for the interviews to the professionals. (Refer to the appendix: ) which took approximately 20-30mins. The time varies depending on the understanding of the groups which workshop was executed. The matrix used for the explanation to the workshop participants were the one with Australian case as a sample as the participants had to create the matrix using Japan as a case.

**Step3:** Two papers which each has blank matrix is printed distributed and participants were given 15 minutes to fill the matrix as Test1. Creating both public social insurance and private life insurance matrix using Japan as a case was required. The participants had no restrictions in accessing to any kind of necessary information via internet or any other ways for executing the test. The extension of testing time was also permitted based upon request.

**Step4:** Make pairs of two or three in the room. And create the combined version of public and private matrix in pairs. Participants were given another 15 minutes to fill the matrix as Test2. Again, the participants had no restrictions in accessing to any kind of necessary information. The extension of testing time was also permitted based upon request.

**Step5:** The Post questionnaire includes following questions.

- i. Questions to see how the understanding of insurance in general has changed. (4 questions)
- ii. Questions to ask the easiness to use the matrix in person and with the others. (5 questions)

#### 4.2.3.4. Conditions of the workshops were conducted

- i. Free Wi-Fi access to internet

- ii. Allowed to bring own PC
- iii. Allowed to talk to each other

### 4.3. Result of Evaluation

In this section, the result of the evaluation executed are described from both quantitative and qualitative point of view.

#### 4.3.1. Quantitative result

This was confirmed by the result of questionnaire taken at the workshop. The questions on the questionnaire was chosen to see the result following the evaluation axes but also to find out more about the model and matrix such like it's usage or the points to be modified.

In this section, have picked up only the main four questions asked to examine it's result from statistical point of view.

The questionnaire used is attached as an appendix.

##### 4.3.1.1. Quantitative results for comprehensibility

The result of analysis of variance of the pre-questionnaire and post questionnaire result shows that it has statistical significance. In details, have conducted paired t-test to the result of questionnaire of taken before and after explaining the structure of insurance which asks about the comprehensiveness of the insurance. As a result, significant difference was found in 5% significance level. (Average difference 1.1, Standard deviation 0.85, Significance probability 0.00). Thus, the explanation scheme of insurance structure devised in this research is an be said that it is useful for improving the understanding degree.

##### 4.3.1.2. Quantitative results for generalising customer demands

The paired t-test was conducted to the result of questionnaire of taken before and after explaining the structure of insurance which asks about the understanding the insurance which is necessary for oneself. As a result, significant difference was found in 5% significance level. (Average difference 0.65, Standard deviation 1.34, Significance probability 0.44). Thus, the explanation scheme of insurance structure devised in this research is an be said that it is useful for improving the generalising the demands by understanding the insurance which is necessary for oneself.



### 4.3.1.3. Other quantitative results

#### **The need of insurance**

The paired t-test for the question which asked about the need of insurance did not show the significant difference. (Average difference -0.2, Standard deviation 1.23, Significance probability 4.79). The cause of this result could be considered as that the question in Japanese sounded more like questioning personal needs to join insurance rather than its necessity in general. This result raised that more analysis of the appropriateness of the question to be asked and the accuracy of expression that the question has when creating a questionnaire as a future consideration.

#### **Revision and new contract**

The question asking the need of revising current contract or joining a new contract also did not show the significant difference. (Average difference 0.45, Standard deviation 1.46, Significance probability 1.86). The cause of this can be considered as it is reflecting the each participants situation and background more than expected. It should have been analysed with the demographic data to get more accurate result. This also be the future consideration.

## 4.3.2. Qualitative results

In this section, the result of the interviews to the professionals and specialist will be described from the qualitative point of view. Mainly using the comments and feedback given during the interview.

### 4.3.2.1. Qualitative results from the interviews to the professionals

Below is the summary of the comments of the four professional interviews of all 3 axes. It was mainly positive and were able to get practical and useful comments. One of the big feedback regarding the matrix was that the original matrix which had only 4 types of financial risks was that it cannot cover the investment type products. Based on this feedback, the financial risk item was reviewed and expanded to 8 types. By this change, most of the life insurance products were able to find best slot to be located. And the matrix become more practical for use.

In common;

- Good points of the model;
  - The model of VMCDSD clearly represents insurance structure as well as the concept
  - Especially realising insurance coverage in 'block' shows the substantial of insurance
  - Using three-dimensional model to describe insurance is very new in life insurance industry.
  - VMCDSD is much easier to understand than current two-dimensional sales illustration tool.
  - By visualising the difficult information in three-dimensional model and VMCDSD is making it easy to understand
  - The best point of helping the comprehensiveness is the concept of subtraction of the layer in VMCDSD.

Per target users;

- i. For individual customer
  - Some of the people may find it difficult to understand using the matrix, as:
    - It requires some insurance knowledge.
    - Japanese has a stereotype that insurance is something difficult to understand.
    - It is too logical.
  - It will be a good for the people who is willing to review their existing insurance contract.
  - It might be suitable for those who like to think logically.
  - It can be used to change individual customer's mind, mind-set or awareness of life insurance but limited to people who is highly conscious in financial area issue.
  - It can be used to explain the feature of the product using the matrix.
- ii. For sales person
  - Would like to have the information of model, matrix and it's concept on the textbook for the sales person.
  - It is good for the sales person to straighten up the customer information from the interview including the demographic information, shown and hidden demands.
- iii. At bankassuarance

- Visualising the location or the target areas of the product is enabled by using the matrix. It is good that product feature appears in matrix. This is useful when explaining new product which life insurance company is going to introduce to bank.

#### 4.3.3. Confirming the applicability through case studies.

Considering the comment given at the interview to the specialist, which indicated the possibility of applying this model and matrix to the foreign countries case, the below case study activity was conducted as below.

##### 4.3.3.1. Objective

As the model and matrix was created by referring to the Japanese insurance system there was a possibility that it would only useable and effective in Japan.

- To find out the cause of exclusiveness.
- Which items on the matrix should be added, excluded or modified.
- What other element or pint of view need to be considered.

The main purpose is the confirm that the model and matrix could be understood by the people who lives under different types of insurance system and can use by them as pre-examination. Therefore, the confirming the correctness of the test result is out of scope.

##### 4.3.3.2. Target countries and selecting criteria

###### **Target Countries**

The idea of insurance system was imported from the west into Japan. Therefore, the western countries have longer history and matured system compare to Japan and other Asian countries. Taking this into consideration, the following countries were chosen.

1. Australia
2. United Kingdom
3. Indonesia
4. Saudi Arabia

### Characteristic of the participants.

Table 4 Characteristic of the participants of case study

1	Australia	Australian working in Japan.
2	United Kingdom	Japanese working in UK
3	Indonesia	Indonesian working in Indonesia
4	Saudi Arabia	Saudi Arabian studying in Japan, co-worked with another Saudi Arabian who has working experience in insurance.

The working experience at life insurance company was not taken into consideration as the selecting criteria for this time.

#### 4.3.3.3. Procedure of Case study

The workshop was conducted following the below steps.

Step1. Answering Pre-questionnaire.

Step2. Brief explanation of insurance and explanation of the model and the matrix.

Step3. Examine individually through Test 1.

Step5. Answer Post questionnaire.

The document used for the explanation and test, and questionnaires are all same as the one used in the workshop. Although, for non-Japanese speakers the English questionnaire was used.

Also, due to the physical distance and time difference, the explanation was conducted via Facebook Messenger Video Chat for some case and each tester were given a week time to conduct Test1.

**Step1:** The Pre-questionnaire includes following questions.

- iii. Demographic questions that asked about age, gender, marital status, work experience. (4 questions)
- iv. Questions to see the understanding of insurance in general. (5 questions)

**Step2:** The PowerPoints slides used for the explanation including two sections. First section is brief explanation of insurance in general such like the definition and difference of insurance in various point of view. Second section is the model

and matrix images which was used for the interviews to the professionals. (Refer to the appendix) which took approximately 20-30mins. The time varies depending on the understanding of the groups which workshop was executed. The matrix used for the explanation to the interviewee contained Japanese public social insurance and private life insurance information as a sample.

**Step3:** The Excel spreadsheet including three blank matrixes each for public, private and public & private case was given to fill in as Test1. There was no restriction among using which matrix sheet out of the three sheets provided. Creating the matrix reflecting each countries insurance system was required. The participants had no restrictions in accessing to any kind of necessary information via internet or any other ways for executing the test. The testing time was limited to 1 weeks but extension was also permitted based upon request.

**Step4:** The Post questionnaire includes following questions.

- iii. Questions to see how the understanding of insurance in general has changed. (4 questions)
- iv. Questions to ask the easiness to use the matrix in person and also with the others. (5 questions)

#### 4.3.3.4. Result of the case studies

The numbers of case studies are not meeting the criteria of statistical analysis. Therefore, only the outcome of the test1 will be shown as a result of case study.

#### **Australia**

In Australia, medical and welfare service is covering entire nation which is similar to Japanese social security institution, however it is funded by tax and not the social insurance premium.

The case study result shows that areas covered are similar to Japan. The interesting difference is that using ambulance even in case of emergency will be costed.

Public & Private	Blue : Public	Red : Private		After death (Unable to provide family)
	Treatment cost	Illness (Risk of unable to work) Cost of living - Insured	Cost of living - Family	Cost of living - Family
AUSTRALIA				
Death				Survivor pension Mortality insurance Endowment policy Funeral Cover Legal Expenses Debt Repayments Dependant expenses Whole life insurance
Eldery Care	Public Eldery care Private Eldery care	N/A	N/A	
Home remedy	N/A	Public Disability allowance Public pension plan Unemployment compensation Welfare Private Disability income	N/A	
Hospitalized	Public health care incl. consultation fees for certain doctors/specialists and Public Hospitals High-cost medical care benefit Medical insurance Ambulance services Specified disease insurance Rehabilitation Equipment Private Hospitals	N/A	N/A	
Surgery	Public health care High-cost medical care benefit Medical insurance Specified disease insurance Private Hospitals	N/A	N/A	
Being diagnosed	Cancer insurance and other long stay patients (usually over a month in hospital) however it is often a case by case.	N/A	N/A	
Not feeling well	N/A	N/A	N/A	
Healthy	N/A	N/A	N/A	

Figure 20 Case study result - Australia

## United Kingdom

United Kingdom was one of the country which Japanese social security institution has referred to at the time it's established as an advanced example of social security.

The result shows that NHS, National Health Service which is alike the Japanese public health insurance system covers wider area compare to Japanese system.

Public & Private	Blue : Public	Red : Private		被保険者の死後(養えないリスク) After death (Unable to provide family)
	医療費 Treatment cost	病氣療養中(働けないリスク) Illness (Risk of unable to work) 被保険者の生活費 Cost of living - Insured	家族の生活費 Cost of living - Family	家族の生活費 Cost of living - Family
UK				
死亡 Death				Life insurance
介護 Eldery Care	NHS Government state benefits Private health insurance	Government state benefits	N/A	
自宅療養 Home remedy	NHS Private health insurance	Government state benefits Private health insurance	Government state benefits	
入院療養 Hospitalized	NHS Private health insurance	Government state benefits Private health insurance	Government state benefits	
手術 Surgery	NHS Private health insurance	Government state benefits Private health insurance	N/A	
疾病が判明 Being diagnosed	NHS Private health insurance	Government state benefits Private health insurance	N/A	
調子が良くない Not feeling well	N/A	N/A	N/A	
健康 Healthy	N/A	N/A	N/A	

Figure 21 Case study result – United Kingdom

## Indonesia

Indonesia used to have multiple social security institution which were united into one recently.

The result shows that the areas cover by the private life insurance product are slightly wider than Japan.

Public & Private	Blue : Public			Red : Private
	病気療養中(働けないリスク) Illness (Risk of unable to work)			被保険者の死後(養えないリスク) After death (Unable to provide family)
Indonesia	医療費 Treatment cost	被保険者の生活費 Cost of living - Insured	家族の生活費 Cost of living - Family	家族の生活費 Cost of living - Family
死亡 Death	-	-	-	family income plan for specified disease insurance, planned death assurance account
介護 Eldery Care	-	public pension plan (included in the company regulated amount varied, depends on company benefit) private pension plan	private pension plan	-
自宅療養 Home remedy	private limited time (3 months) recovery care	private disability income	private family assurance plan	-
入院療養 Hospitalized	public general health care for normal and common illness sufficient medical care benefit (depend on the class) medical insurance, specified business insurance	specified business insurance	-	-
手術 Surgery	public general health care for normal and common illness sufficient medical care benefit (depend on the class). limited benefit for amount for pre and post surgery care medical insurance, specified business insurance	-	-	-
疾病が判明 Being diagnosed	public general health care for normal and common illness sufficient medical care benefit (depend on the class) specified disease insurance	specified diseases insurance	family income plan for specified disease insurance	-
調子が良くない Not feeling well	public general health care for normal and common illness sufficient medical care benefit (depend on the class) specified disease insurance	-	-	-
健康 Healthy	-	-	-	-

Figure 22 Case study result - Indonesia

### Saudi Arabia

The social security institution as well as the private life insurance product from it's penetration ratio is different from Japan.

The result shows that the service provided by the government and private life insurance company does not compete with each other except 'Cost of living for the Family after insured's death'.

Public & Private	病気療養中(働けないリスク) Illness (Risk of unable to work)			被保険者の死後(養えないリスク) After death (Unable to provide family)
	医療費 Treatment cost	被保険者の生活費 Cost of living - Insured	家族の生活費 Cost of living - Family	家族の生活費 Cost of living - Family
Saudi Arabia				
死亡 Death	-	-	-	Survivor pension Mortality insurance Endowment policy Whole life insurance
介護 Nursing	nursing allowance for disability when needed	N/A	N/A	-
自宅療養 Home remedy	N/A	Disability allowance Public pension plan Unemployment compensation Welfare	N/A	-
入院療養 Hospitalized	Medical insurance Specified disease insurance		N/A	-
手術 Surgery	Medical insurance Specified disease insurance		N/A	-
疾病が判明 Being diagnosed	Cancer insurance		N/A	-
調子が良くない Not feeling well	N/A	N/A	N/A	-
健康 Healthy	N/A	N/A	N/A	-

Figure 23 Case study result – Saudi Arabia

### **Summary & Future considerations**

Statistical analysis was not conducted as there are only 4 cases of samples. This case study activity was to confirm the applicability as a pre-examination and was not aim to collect the correct information, therefore it requires the confirmation of the correctness of the outcome as well as the further sample collection. However, the result showed some interesting points such like the difference between the others and the characteristic of each countries insurance system has appeared. The applicability to the foreign countries cases must be further confirmed as a separate and dedicated research, however as a future studies.

### **4.4. Discussion**

The three evaluation axes were confirmed from both quantitative and qualitative approach. And, applicability was briefly confirmed through case studies. It also has brought many practical and useful insight which actually gave chance to modify the matrix. Not only to the model and matrix itself but the insight has showed and expanded what can be done with it.

#### **4.4.1. Comprehensibility**

Both from the qualitative and quantitative point of view, this evaluation proved that the model and matrix has the ability of comprehensibility of insurance. The depth or the width of the comprehensibility may depend on the existing knowledge or experiences which one already has. Although, the model and matrix will help the people to deepen or widen their understanding and knowledge of insurance.

During the workshop, many of the participants shared their thoughts but was mostly regarding the information of insurance. They mentioned that insurance is not a topic which they proactively earn or learn. On top of that, it is not a topic which they find chance or trigger to search information. The lack of information and the lack in chance may be the cause of the negative image of insurance in Japan.

Have found out during the workshop, that most of the information they have about insurance was few names of the private life insurance products which



they got the information from the advertisement on TV, newspapers and magazines. They also were mixing the product name and insurance type too. During the workshop and test, people communicated and shared their understanding and thoughts about insurance. Many of the test participants mentioned that talking about insurance to others and listening to others helped to understand it more.

From this, below can be said,

- More educational campaign to spread the information of insurance in general is required (including both public and private life/non-life insurance).
- A workshop style education using the model and matrix could help the people to understand and earn knowledge of insurance, especially the communication and discussion with the others helps.

#### 4.4.2. Generalizing Customer demands

From the quantitative result shown in section 1.3.1.2, this also has been proved that it will support the function of generalising customer demands for life insurance. The matrix will not show you the exact insurance plan or products you should have and how much you should spend for. Although, it will give some kinds of clues and the chances to think about one's provision against financial risk.

#### 4.4.3. Appropriateness

The appropriateness of the model and matrix was confirmed by the life insurance professionals. They commented that they don't have the feeling of wrongness from life insurance company point of view.

Although, this time, the evaluation was not performed including the non-life insurance point of view and professionals. This should be confirmed as a future research.

#### 4.4.4. Applicability

Through the four case studies in Australia, United Kingdom, Indonesia and Saudi Arabia, it has shown the possibility of applying the model and matrix to foreign countries other than Japan. The concept of the model and matrix was understood

As the future studies, research is recommended to be executed under below conditions.

- The participants should have a working experience in life insurance company. This is to satisfy the correctness of the information.
- The granularity of the information, level of abstract of the matrix should be clearly stated in advance. This is for the comparison process executed after the creation of matrix.

That will lead to further future studies which is to compare the insurance system of the world using the model and matrix.

### 4.5. Recommendation of possible future analysis

While creating the model, and during evaluation, there was many findings, insights and great feedbacks from the professionals and the participants of the workshop. Based on the useful comments given and variable findings this section will discuss about the future analysis.

Below shows the outline of the how the model and matrix can be used, and the future analysis are categorised based on the following chart.

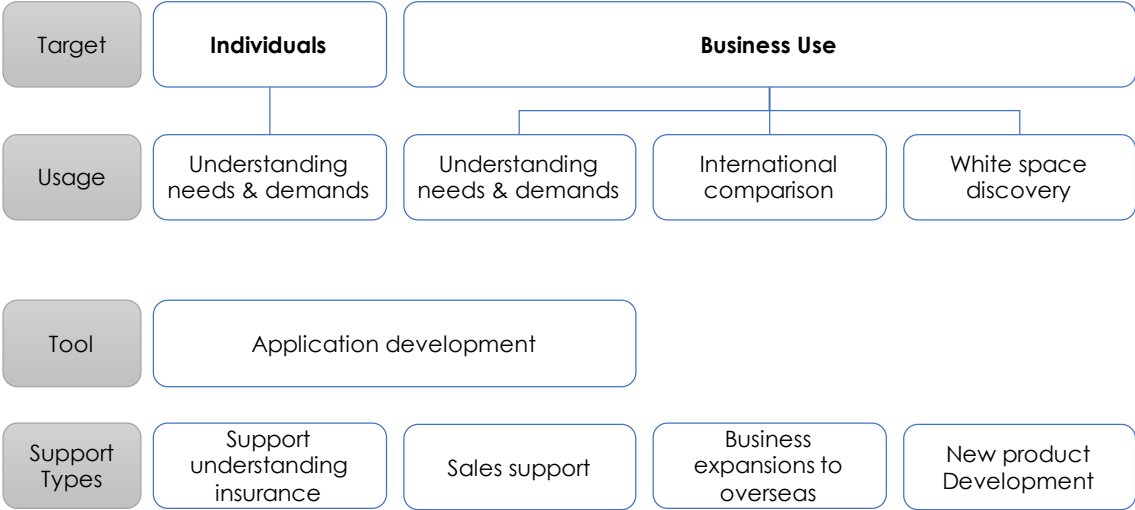


Figure 24 The usage of the model & matrix per target

#### 4.5.1. Educational workshop

As mentioned in the evaluation section (4.4.1) there was interesting comments which mentioned that there is not so many people has an experience communicating using life insurance as a topic. . Although, communicating about life insurance as a topic during the workshop, it did not just give a chance to talk and know about life insurance but communicating with others had actually helped understanding.

From this, not just using the model or matrix when people think about their needs of life insurance, but having a workshop type activity before starting to think their own life insurance plan, it could be more valuable.

The workshop agenda is as follows.

1. Introduction of workshop
2. Explanation of life insurance
3. Test
  - a. Test by individual (Complete the public and private worksheet)
  - b. Test in pairs
4. Visualise each customer needs with sales representatives

This workshop can be organised as two separate workshops or can be one. The first half (up to step3), can be the tutorial type workshop session and the latter half (Step4) can be advisory session with the sales representatives. It can be conducted in a day or it can be done on the separate day with different participants. Although, the comprehensibility of life insurance increases when it was conducted from step1-4 as a straight through process.

The target participants of the workshops will be the customers of the banks or security firms who are planning to buy life insurance products. There are two reason for this; 1) the initial screening is completed by the bank or security firm and they have enough financial allowance to afford buying new life insurance contract, 2) they have strong needs and will to buy life insurance product which may easily turn to demands.

This workshop can be conducted to other types of users but may be recommended to split the session into two and conduct only first half as mandatory and later half as an optional.

#### 4.5.2. Application development

There was a feedback from the professionals of life insurance company that the concept of the model and what can be done with it, is something very useful at insurance solicitation. Although, at the same time there was a comment saying that this too difficult for some of the sales person and user to use as of now. Therefore, all the professionals had mentioned that it should be made as an application which works on PC or tablet, so that sales person as well as the customer can learn and plan insurance at the same time together.

#### 4.5.3. Possibility of applying to other industries

Due to the structure of the model which has customer demands layer on the top, this enables the model to be applied to other industries which also has customer demands as element of the system.

For instance, as life insurance is part of financial industry and the product which entire industry is handling is invisible alike life insurance product. Therefore, it has high affinity with the model from usability point of view.

## 5. Conclusion

Life insurance is not something that stands on its own. It has public social security as a constraint and an assumption at the same time. And, also should meet each individual customer demands. Otherwise, it is not attractive enough to be sold in the market.

Although, to meet the customer demands is difficult, as the life insurance product which fulfils customer demands is not something that people can physically touch it. This invisibleness could be the cause of providing the impression that life insurance is difficult, and could be the cause that lead to the unconsciousness and dissatisfaction of their own life insurance contracts.

In this paper, the structure and concept of the insurance is described in the visualising model of customer demands sufficiency degree as a proposal to ease the comprehensibility of life insurance. Once the customer demands are set then by deducting what public social insurance institution and private life/non-life insurance product from it, will tell the customer which areas of risk will be supported by which public institution or private insurance products. By visualising what is ready now for supporting each individual financial risk, it not only helps people to understand but to find out what is the true customer demands are.

The evaluation was conducted from both quantitative and qualitative approach. The workshop, interviews to the professionals and interview to the specialist were executed to confirm the model and matrix with the three evaluation axes, 1) comprehensibility, 2) generating customer needs and 3) appropriateness. The comprehensibility and generating customer needs was statistically proved to have the valid significance. Also, the feedbacks through the questionnaire and interviews were very positive and showed great value and contribution to the problem that life insurance had.

The appropriateness has also been proved by the confirmation by the life insurance professionals. The private life insurance product that can be cover by matrix was not enough as the proto-type version only had four financial areas. It has been reviewed and updated.

These evaluations results have shown that visualising model of customer demands sufficiency degree provides a support to people comprehending life

insurance, and helps generalizing customer needs. It also showed these supports by the VMCDSD, people will get more positive impression to life insurance product, as many of the participants of the evaluation of this research expressed a feeling that they wish to actively research or review life insurance products.

# Appendix

## Appendix A.

### 修士論文 検証

慶応義塾大学システムデザイン・マネジメント研究科  
当麻研究室 修士2年 竹谷 郁衣  
2016-12-30

### 本日の検証手順

#### 検証の流れ

1. 事前アンケート	5分
2. 説明	10分
3. テスト①	15分
4. テスト②	15分
5. 事後アンケート	10分

#### Step1. 事前アンケート

下記より、オンラインの事前アンケートにお答えください。

[http://sdmkeio.co.jp/qaotitica.com/SE/FSID=SY\\_eeyYdlyA779Ux](http://sdmkeio.co.jp/qaotitica.com/SE/FSID=SY_eeyYdlyA779Ux)

5分

#### Step2. 説明

次のページより始まる、説明スライドをよくお読みください。

10分

### 保険とは？

火災・死亡など偶然に発生する事故によって生じる経済的不安に備えて、多数の者が掛け金を出し合い、それを資金として事故に遭遇した者に一定金額を給付する制度。

生命保険・損害保険など。

「一を掛ける」「一に入る」

出典：デジタル大辞泉(小学館)

### 保険とは？

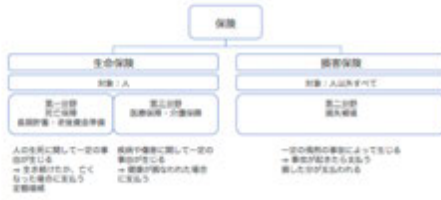
保険法 第二条

六 損害保険契約 保険契約のうち、保険者が一定の偶然的事故によって生ずることのある損害をてん補することを約するものをいう。

七 傷害疾病損害保険契約 損害保険契約のうち、保険者が人の傷害疾病によって生ずることのある損害（当該傷害疾病が生じた者が受けるものに限る。）をてん補することを約するものをいう。

八 生命保険契約 保険契約のうち、保険者が人の生存又は死亡に関し一定の保険給付を行うことを約するもの（傷害疾病定額保険契約に該当するものを除く。）をいう。

## 生命保険と損害保険の違いとは？



## 生命保険と損害保険



## 生命に関する保険の種類



## 保証と保障

**保証**： Guarantee, Warranty  
 ①まちがいなく大丈夫であるとうけあうこと。まちがいやけいじたら責任をとると、約束すること。  
 「利息を—する」「—の限りではない」  
 ②債務者が債務を履行しない場合、これに代わって債務を履行するという義務を負うこと

**保障**： Guarantee, Security, (Coverage)  
 ①責任をもって安全を届け合し、一定の地位や状態を保護すること。「航路の安全を—する」  
 ②守る足掛くこと。また、そのもの。

「保証」はその人物や物事は確かではないと届け合うこと  
 「保障」は地位、権利、利益などが侵害されないように保護し守ること  
 「補償」は損失・費用などをつくらうことという Compensation

出典：大辞林 第三版(小学館)

## 生命保険商品の構成



## 保険のアーキテクチャモデル





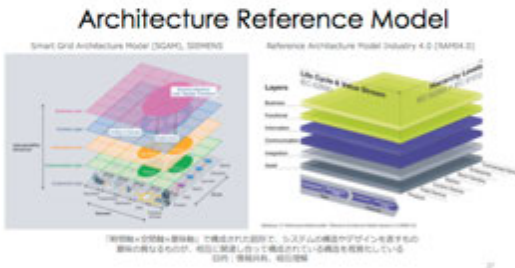






Thank you so much for your support !!

## appendix



## Definition of an architectural model

An architectural model is a rich and rigorous diagram, creating using available standards, in which the primary concern is to illustrate a specific set of tradeoffs inherent in the structure and design of a system or ecosystem. We use architectural models to communicate with others and seek peer feedback.

**Why:** An architectural model is a diagram that illustrates the structure and design of a system or ecosystem. The primary concern is to illustrate a specific set of tradeoffs inherent in the structure and design of a system or ecosystem. We use architectural models to communicate with others and seek peer feedback.

**What:** An architectural model is a diagram that illustrates the structure and design of a system or ecosystem. The primary concern is to illustrate a specific set of tradeoffs inherent in the structure and design of a system or ecosystem. We use architectural models to communicate with others and seek peer feedback.

**How:** An architectural model is a diagram that illustrates the structure and design of a system or ecosystem. The primary concern is to illustrate a specific set of tradeoffs inherent in the structure and design of a system or ecosystem. We use architectural models to communicate with others and seek peer feedback.

**When:** An architectural model is a diagram that illustrates the structure and design of a system or ecosystem. The primary concern is to illustrate a specific set of tradeoffs inherent in the structure and design of a system or ecosystem. We use architectural models to communicate with others and seek peer feedback.

**Where:** An architectural model is a diagram that illustrates the structure and design of a system or ecosystem. The primary concern is to illustrate a specific set of tradeoffs inherent in the structure and design of a system or ecosystem. We use architectural models to communicate with others and seek peer feedback.

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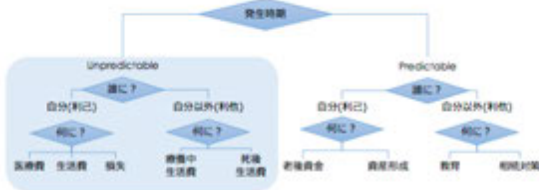
**How:** An architectural model is a diagram that illustrates the structure and design of a system or ecosystem. The primary concern is to illustrate a specific set of tradeoffs inherent in the structure and design of a system or ecosystem. We use architectural models to communicate with others and seek peer feedback.

**When:** An architectural model is a diagram that illustrates the structure and design of a system or ecosystem. The primary concern is to illustrate a specific set of tradeoffs inherent in the structure and design of a system or ecosystem. We use architectural models to communicate with others and seek peer feedback.

**Where:** An architectural model is a diagram that illustrates the structure and design of a system or ecosystem. The primary concern is to illustrate a specific set of tradeoffs inherent in the structure and design of a system or ecosystem. We use architectural models to communicate with others and seek peer feedback.

**Who:** An architectural model is a diagram that illustrates the structure and design of a system or ecosystem. The primary concern is to illustrate a specific set of tradeoffs inherent in the structure and design of a system or ecosystem. We use architectural models to communicate with others and seek peer feedback.

## 経済的不安とは？



## 公的社会保障の保障範囲<改訂版>

公的社会保障の保障範囲<改訂版>

注：保障範囲は、公的社会保障の保障範囲を指す。保障範囲は、公的社会保障の保障範囲を指す。

保障項目	国民年金		厚生年金		健康保険		介護保険	
	自己(利己)	自己以外(利他)	自己(利己)	自己以外(利他)	自己(利己)	自己以外(利他)	自己(利己)	自己以外(利他)
老齢給付	○	○	○	○	○	○	○	○
障害給付	○	○	○	○	○	○	○	○
遺族給付	○	○	○	○	○	○	○	○
介護給付	○	○	○	○	○	○	○	○
医療給付	○	○	○	○	○	○	○	○
生活保護	○	○	○	○	○	○	○	○
児童手当	○	○	○	○	○	○	○	○
子育て支援	○	○	○	○	○	○	○	○
教育	○	○	○	○	○	○	○	○
その他	○	○	○	○	○	○	○	○



## Appendix B.

Test 2  
Pair A

Public & Private

日本

	病気療養中(働けないリスク) Illness (Risk of unable to work)			被保険者の死後(働えないリスク) After death (Unable to provide family)
	医療費 Treatment cost	被保険者の生活費 Cost of living - Insured	家族の生活費 Cost of living - Family	家族の生活費 Cost of living - Family
死亡 Death				遺族年金, 生活保護
介護 Eldery Care	介護保険	生活保護	生活保護	
自宅療養 Home remedy	健康保険	雇用保険・収入補償	生活保護	
入院療養 Hospitalized	医療保険	収入補償	生活保護	
手術 Surgery	医療保険	—	—	
疾病が判明 Being diagnosed	医療保険・健康保険	—	—	
調子が良くない Not feeling well	健康保険・健康保険	—	—	
健康 Healthy		基礎年金 厚生年金	—	

1/6 検証結果 テスト 2の結果

Public -  
Social insurance

日本

	病気療養中(働けないリスク) Illness (Risk of unable to work)			被保険者の死後(働えないリスク) After death (Unable to provide family)
	医療費 Treatment cost	被保険者の生活費 Cost of living - Insured	家族の生活費 Cost of living - Family	家族の生活費 Cost of living - Family
死亡 Death				生活保護
介護 Eldery Care	介護保険	生活保護	生活保護	
自宅療養 Home remedy	健康保険	生活保護	生活保護	
入院療養 Hospitalized	健康保険	生活保護	生活保護	
手術 Surgery	健康保険	—	—	
疾病が判明 Being diagnosed	健康保険	—	—	
調子が良くない Not feeling well	健康保険	—	—	
健康 Healthy	—	—	—	

Test 1

Testee 1

1/6 検査結果 テスト① 補給者②

Private insurance 日本	病気の療養中(働けないリスク) Illness (Risk of unable to work)			被保険者の死後(養えないリスク) After death (Unable to provide family)
	医療費 Treatment cost	被保険者の生活費 Cost of living - Insured	家族の生活費 Cost of living - Family	家族の生活費 Cost of living - Family
死亡 Death	-	-	-	死亡保険
介護 Eldery Care	—	—	—	-
自宅療養 Home remedy	—	収入保障保険	収入保障保険	-
入院療養 Hospitalized	疾病保険 入院保障	—	—	-
手術 Surgery	疾病保険	—	—	-
疾病が判明 Being diagnosed	ガン保険等	—	—	-
調子が良くない Not feeling well	—	—	—	-
健康 Healthy	—	—	—	-

Test 1  
Testee 1

1/6 検査結果 テスト① 補給者②

Public - Social insurance 日本	病気の療養中(働けないリスク) Illness (Risk of unable to work)			被保険者の死後(養えないリスク) After death (Unable to provide family)
	医療費 Treatment cost	被保険者の生活費 Cost of living - Insured	家族の生活費 Cost of living - Family	家族の生活費 Cost of living - Family
死亡 Death	-	-	-	遺族年金
介護 Eldery Care	介護保険	-	-	-
自宅療養 Home remedy	↑	-	-	-
入院療養 Hospitalized	↑	↑	↑	-
手術 Surgery	↑	↑	↑	-
疾病が判明 Being diagnosed	労災保険	雇用保険	-	-
調子が良くない Not feeling well	健康保険	-	-	-
健康 Healthy	-	基礎年金 厚生年金	-	-

Test 1  
Testee 2

1/6 福祉経済テスト① 社会保障②

Private insurance  
日本

	病気療養中(働けないリスク) Illness (Risk of unable to work)			被保険者の死後(養えないリスク) After death (Unable to provide family)
	医療費 Treatment cost	被保険者の生活費 Cost of living - Insured	家族の生活費 Cost of living - Family	家族の生活費 Cost of living - Family
死亡 Death	-	-	-	生命保険
介護 Elderly Care	介護保険	///	→	-
自宅療養 Home remedy	医療、がん保険	///	→	-
入院療養 Hospitalized	医療保険、がん保険	-	-	-
手術 Surgery	医療保険	-	-	-
疾病が判明 Being diagnosed	-	-	-	-
調子が良くない Not feeling well	-	-	-	-
健康 Healthy	がん保険、医療保険	失業保険	-	-

Test 1  
Tested 2

Test 2  
Pair B

Public & Private  
日本

	病気療養中(働けないリスク) Illness (Risk of unable to work)			被保険者の死後(養えないリスク) After death (Unable to provide family)
	医療費 Treatment cost	被保険者の生活費 Cost of living - Insured	家族の生活費 Cost of living - Family	家族の生活費 Cost of living - Family
死亡 Death	-	X	-	国民年金(遺族)
介護 Elderly Care	介護	国民年金(障害年金)	国民年金	-
自宅療養 Home remedy	介護	X	X	-
入院療養 Hospitalized	医療(保険)	X	X	-
手術 Surgery	医療(保険)	医療保険	X	-
疾病が判明 Being diagnosed	X	X	X	-
調子が良くない Not feeling well	X	X	X	-
健康 Healthy	X	X	X	-

日付  
氏名

Test 1  
Testee 3

Private insurance  
日本

	病気の発生(働けないリスク) Illness (Risk of unable to work)			被保険者の死後(養えないリスク) After death (Unable to provide family)
	医療費 Treatment cost	被保険者の生活費 Cost of living - Insured	家族の生活費 Cost of living - Family	家族の生活費 Cost of living - Family
死亡 Death	-	-	-	生命保険
介護 Eldery Care		介護補償付保	X	-
自宅療養 Home remedy				-
入院療養 Hospitalized				-
手術 Surgery				-
疾病が判明 Being diagnosed	がん 付保	自任状とがん付保		-
調子が良くない Not feeling well			-	
健康 Healthy		がん健付保	-	

日付  
氏名

Test 1  
Testee 3

Public - Social insurance  
日本

	病気の発生(働けないリスク) Illness (Risk of unable to work)			被保険者の死後(養えないリスク) After death (Unable to provide family)
	医療費 Treatment cost	被保険者の生活費 Cost of living - Insured	家族の生活費 Cost of living - Family	家族の生活費 Cost of living - Family
死亡 Death	-	-	-	-
介護 Eldery Care		介護保険		-
自宅療養 Home remedy				-
入院療養 Hospitalized				-
手術 Surgery	がん			-
疾病が判明 Being diagnosed	がん 健付保 がん健付保			-
調子が良くない Not feeling well				-
健康 Healthy				-



目付  
氏名

Test 1  
Testee 4

Public -  
Social insurance  
日本

	病状療養中(働けないリスク) Illness (Risk of unable to work)			被保険者の死後(養えないリスク) After death (Unable to provide family)
	医療費 Treatment cost	被保険者の生活費 Cost of living - Insured	家族の生活費 Cost of living - Family	家族の生活費 Cost of living - Family
死亡 Death	<del>健康保険</del> 国民年金	×	国民年金 (遺族)	国民年金 (遺族)
介護 Eldery Care	介護保険	国民年金 (障害)	国民年金	-
自宅療養 Home remedy	介護保険	×	×	-
入院療養 Hospitalized	<del>健康保険</del> 国民年金	×	×	-
手術 Surgery	健康保険	×	×	-
疾病が判明 Being diagnosed	健康保険	×	×	-
調子が良くない Not feeling well	※	×	×	-
健康 Healthy	×	×	×	-

目付  
氏名

Test 1  
Testee 4

Private  
insurance  
日本

	病状療養中(働けないリスク) Illness (Risk of unable to work)			被保険者の死後(養えないリスク) After death (Unable to provide family)
	医療費 Treatment cost	被保険者の生活費 Cost of living - Insured	家族の生活費 Cost of living - Family	家族の生活費 Cost of living - Family
死亡 Death	-	-	-	① <del>国民年金</del> 遺族
介護 Eldery Care	介護保険	介護保険	×	-
自宅療養 Home remedy	介護保険	介護保険	×	-
入院療養 Hospitalized	医療保険	×	×	-
手術 Surgery	医療保険	医療保険	×	-
疾病が判明 Being diagnosed	×	×	×	-
調子が良くない Not feeling well	×	×	×	-
健康 Healthy	×	×	×	-

日付  
氏名

Test 2  
Pair C

Public & Private

日本

	病気療養中(働けないリスク) Illness (Risk of unable to work)			被保険者の死後(養えないリスク) After death (Unable to provide family)
	医療費 Treatment cost	被保険者の生活費 Cost of living - Insured	家族の生活費 Cost of living - Family	家族の生活費 Cost of living - Family
死亡 Death				生命 死亡給付金 遺族年金
介護 Eldery Care	介護保険	介護		
自宅療養 Home remedy		介護		
入院療養 Hospitalized	生命 医療	介護	介護	
手術 Surgery	生命 医療	介護	介護	
疾病が判明 Being diagnosed	医療			
調子が良くない Not feeling well	健康	介護	介護	
健康 Healthy	健康			

日付  
氏名

Test 1  
Testee 5

Public -  
Social insurance

日本

	病気療養中(働けないリスク) Illness (Risk of unable to work)			被保険者の死後(養えないリスク) After death (Unable to provide family)
	医療費 Treatment cost	被保険者の生活費 Cost of living - Insured	家族の生活費 Cost of living - Family	家族の生活費 Cost of living - Family
死亡 Death				遺族年金
介護 Eldery Care				
自宅療養 Home remedy				
入院療養 Hospitalized	後期高齢者医療			
手術 Surgery				
疾病が判明 Being diagnosed				
調子が良くない Not feeling well				
健康 Healthy	健康保険			

日付  
氏名

Test 1  
Testee 5

Private insurance  
日本

	病状療養中(働けないリスク) Illness (Risk of unable to work)			被保険者の死後(働えないリスク) After death (Unable to provide family)
	医療費 Treatment cost	被保険者の生活費 Cost of living - Insured	家族の生活費 Cost of living - Family	家族の生活費 Cost of living - Family
死亡 Death				生命保険 死亡出金
介護 Eldery Care	介護保険	介護保険		
自宅療養 Home remedy	死亡			
入院療養 Hospitalized	介護保険			
手術 Surgery	介護保険			
疾病が判明 Being diagnosed				
調子が良くない Not feeling well				
健康 Healthy				

日付  
氏名

Test 1  
Testee 6

Public - Social insurance  
日本

	病状療養中(働けないリスク) Illness (Risk of unable to work)			被保険者の死後(働えないリスク) After death (Unable to provide family)
	医療費 Treatment cost	被保険者の生活費 Cost of living - Insured	家族の生活費 Cost of living - Family	家族の生活費 Cost of living - Family
死亡 Death				
介護 Eldery Care				
自宅療養 Home remedy				
入院療養 Hospitalized				
手術 Surgery				
疾病が判明 Being diagnosed				
調子が良くない Not feeling well				
健康 Healthy				

日付  
氏名

Test 1  
Testee 6

Private  
insurance  
日本

	病気療養中(働けないリスク) Illness (Risk of unable to work)			被保険者の死後(働えないリスク) After death (Unable to provide family)
	医療費 Treatment cost	被保険者の生活費 Cost of living - Insured	家族の生活費 Cost of living - Family	家族の生活費 Cost of living - Family
死亡 Death				
介護 Eldery Care	介護保険	介護保険 首償保険		
自宅療養 Home remedy	生命保険	健康保険 首償保険		
入院療養 Hospitalized	生命保険 医療保険	健康保険 首償保険		
手術 Surgery	生命保険 医療保険	健康保険		
疾病が判明 Being diagnosed	生命保険	首償保険		
調子が良くない Not feeling well	生命保険	健康保険 首償保険		
健康 Healthy	健康保険	健康保険 首償保険		

日付  
氏名

Test 2  
Pair D

\* Public & Private

日本

	病気療養中(働けないリスク) Illness (Risk of unable to work)			被保険者の死後(働えないリスク) After death (Unable to provide family)
	医療費 Treatment cost	被保険者の生活費 Cost of living - Insured	家族の生活費 Cost of living - Family	家族の生活費 Cost of living - Family
死亡 Death				生命保険 遺族年金
介護 Eldery Care	★介護保険	★介護保険	★介護保険	
自宅療養 Home remedy	★健康保険 ○医療(公)金			
入院療養 Hospitalized	★健康保険 ○医療(公)金	○入院特約	○付帯ロ-ン特約	
手術 Surgery	★健康保険 ○医療(公)金	○入院	○付帯ロ-ン特約	
疾病が判明 Being diagnosed	★健康保険 ○医療(公)金	○入院	○付帯ロ-ン	
調子が良くない Not feeling well	★健康保険			
健康 Healthy	★健康保険			

貯蓄型  
の分類

自分の命?

日付 Test 1  
氏名 Testee 7

Public -  
Social insurance  
日本

	病気療養中(働けないリスク) Illness (Risk of unable to work)			被保険者の死後(働えないリスク) After death (Unable to provide family)
	医療費 Treatment cost	被保険者の生活費 Cost of living - Insured	家族の生活費 Cost of living - Family	家族の生活費 Cost of living - Family
死亡 Death				健康保険(家族保険)
介護 Eldery Care	→ 医療保険			
自宅療養 Home remedy				
入院療養 Hospitalized	医療保険			
手術 Surgery	医療保険			
疾病が判明 Being diagnosed	医療保険			
調子が良くない Not feeling well	医療保険			
健康 Healthy	医療保険	年金		

日付 Test 1  
氏名 Testee 7

Private  
insurance  
日本

	病気療養中(働けないリスク) Illness (Risk of unable to work)			被保険者の死後(働えないリスク) After death (Unable to provide family)
	医療費 Treatment cost	被保険者の生活費 Cost of living - Insured	家族の生活費 Cost of living - Family	家族の生活費 Cost of living - Family
死亡 Death				生命保険
介護 Eldery Care	生命保険 → " 同居			
自宅療養 Home remedy	生命保険 → "			
入院療養 Hospitalized	(がん保険) 生命保険 → "			
手術 Surgery	(がん保険) 生命保険 → "			
疾病が判明 Being diagnosed	(がん保険) 医療保険 → "			
調子が良くない Not feeling well	医療保険 → "			
健康 Healthy				

日付  
氏名

Test 1  
Testee 8

Public -  
Social insurance  
日本

	病状療養中(働けないリスク) Illness (Risk of unable to work)			被保険者の死後(働えないリスク) After death (Unable to provide family)
	医療費 Treatment cost	被保険者の生活費 Cost of living - Insured	家族の生活費 Cost of living - Family	家族の生活費 Cost of living - Family
死亡 Death				遺族厚生
介護 Elderly Care	介護保険	介護保険	介護保険	
自宅療養 Home remedy	介護保険			
入院療養 Hospitalized	健康保険			
手術 Surgery	健康保険			
疾病が判明 Being diagnosed	健康保険			
調子が良くない Not feeling well	健康保険			
健康 Healthy	健康保険			

健康診査  
1回1ヶ月

日付  
氏名

Test 1  
Testee 8

Private  
insurance  
日本

	病状療養中(働けないリスク) Illness (Risk of unable to work)			被保険者の死後(働えないリスク) After death (Unable to provide family)
	医療費 Treatment cost	被保険者の生活費 Cost of living - Insured	家族の生活費 Cost of living - Family	家族の生活費 Cost of living - Family
死亡 Death				生命保険
介護 Elderly Care	介護保険	介護保険	介護保険	
自宅療養 Home remedy	がん保険, 傷害保険			
入院療養 Hospitalized	がん保険, 傷害保険	入院増徴	住宅ローン増徴	
手術 Surgery	がん保険, 傷害保険	"	"	
疾病が判明 Being diagnosed	がん保険, 傷害保険	"	"	
調子が良くない Not feeling well				
健康 Healthy	生命保険 貯蓄型医療保険			

日付  
氏名

Test 2  
Pair E

Public & Private 日本	病気療養中(働けないリスク) Illness (Risk of unable to work)			被保険者の死後(養えないリスク) After death (Unable to provide family)
	医療費 Treatment cost	被保険者の生活費 Cost of living - Insured	家族の生活費 Cost of living - Family	家族の生活費 Cost of living - Family
死亡 Death				死亡保険
介護 Eldery Care	介護保険	介護保険	介護保険	
自宅療養 Home remedy	医療保険	所得補償保険	所得補償保険	
入院療養 Hospitalized	入院保険			
手術 Surgery	入院保険			
疾病が判明 Being diagnosed	がん保険			
調子が良くない Not feeling well	国民健康保険			
健康 Healthy	国民健康保険	<ul style="list-style-type: none"> <li>国民年金</li> <li>厚生年金</li> <li>国民年金保険料</li> <li>自動車</li> <li>火災</li> <li>海外旅行</li> <li>地震保険</li> <li>生命保険</li> </ul>	<ul style="list-style-type: none"> <li>国民年金</li> <li>厚生年金</li> <li>国民年金保険料</li> <li>労災保険</li> <li>自動車</li> <li>火災</li> <li>海外旅行</li> <li>地震</li> <li>火災</li> </ul>	

日付  
氏名

Test 1  
Testee 9

Public - Social insurance 日本	病気療養中(働けないリスク) Illness (Risk of unable to work)			被保険者の死後(養えないリスク) After death (Unable to provide family)
	医療費 Treatment cost	被保険者の生活費 Cost of living - Insured	家族の生活費 Cost of living - Family	家族の生活費 Cost of living - Family
死亡 Death				死亡保険
介護 Eldery Care	介護医療保険	介護医療保険	介護医療保険	
自宅療養 Home remedy	医療保険	所得補償保険 健康保険	所得補償保険	
入院療養 Hospitalized	入院保険			
手術 Surgery				
疾病が判明 Being diagnosed				
調子が良くない Not feeling well				
健康 Healthy				

日付  
氏名

Test 1  
Testee 9

公的に同じ

Private  
insurance  
日本

	病気療養中(働けないリスク) Illness (Risk of unable to work)			被保険者の死後(働えないリスク) After death (Unable to provide family)
	医療費 Treatment cost	被保険者の生活費 Cost of living - Insured	家族の生活費 Cost of living - Family	家族の生活費 Cost of living - Family
死亡 Death				
介護 Eldery Care				
自宅療養 Home remedy				
入院療養 Hospitalized				
手術 Surgery				
疾病が判明 Being diagnosed				
調子が良くない Not feeling well				
健康 Healthy				

日付  
氏名

Test 1  
Testee 10

Private  
insurance  
日本

	病気療養中(働けないリスク) Illness (Risk of unable to work)			被保険者の死後(働えないリスク) After death (Unable to provide family)
	医療費 Treatment cost	被保険者の生活費 Cost of living - Insured	家族の生活費 Cost of living - Family	家族の生活費 Cost of living - Family
死亡 Death				
介護 Eldery Care	介護保険			
自宅療養 Home remedy				
入院療養 Hospitalized	長期入院医療保険 入院保険	介護保険	家族医療保険	
手術 Surgery	入院保険 成人保険			
疾病が判明 Being diagnosed	成人保険			
調子が良くない Not feeling well				
健康 Healthy		自営業 火災 海上旅行 地震保険 生命保険	学資保険 自動車保険 火災保険 海外旅行保険 生命保険	生命保険



日付  
氏名

Test 1  
Testee 10

Public -  
Social insurance  
日本

	病状療養中(働けないリスク) Illness (Risk of unable to work)			被保険者の死後(養えないリスク) After death (Unable to provide family)
	医療費 Treatment cost	被保険者の生活費 Cost of living - Insured	家族の生活費 Cost of living - Family	家族の生活費 Cost of living - Family
死亡 Death				
介護 Eldery Care				
自宅療養 Home remedy				
入院療養 Hospitalized				
手術 Surgery				
疾病が判明 Being diagnosed				
調子が良くない Not feeling well	健康保険			
健康 Healthy		国民年金 厚生年金 健康保険	国民年金 厚生年金 健康保険	

日付  
氏名

Test 2  
Pair F

Public & Private  
日本

	病状療養中(働けないリスク) Illness (Risk of unable to work)			被保険者の死後(養えないリスク) After death (Unable to provide family)
	医療費 Treatment cost	被保険者の生活費 Cost of living - Insured	家族の生活費 Cost of living - Family	家族の生活費 Cost of living - Family
死亡 Death				遺族年金・労災保険 死亡保険
介護 Eldery Care		障害介護査定 介護保険 介護保険		
自宅療養 Home remedy	一人暮らし療養費 高額療養費 健康保険	家族療養	家族療養	
入院療養 Hospitalized	健康保険			
手術 Surgery	健康保険	健康保険		
疾病が判明 Being diagnosed	健康保険 - ニス赤十字保険 健康保険	健康保険		
調子が良くない Not feeling well	健康保険			
健康 Healthy		労災保険	雇用保険 労災保険 健康保険	健康保険

日付 Test 1  
氏名 Testee 11

Private insurance 日本

	病気の発生(働けないリスク) Illness (Risk of unable to work)			被保険者の死後(養えないリスク) After death (Unable to provide family)
	医療費 Treatment cost	被保険者の生活費 Cost of living - Insured	家族の生活費 Cost of living - Family	家族の生活費 Cost of living - Family
死亡 Death				死亡保険
介護 Eldery Care		介護保険	年金不付	
自宅療養 Home remedy	医療保険 介護保険 健康保険 三つ並			
入院療養 Hospitalized				
手術 Surgery				
疾病が判明 Being diagnosed				
調子が良くない Not feeling well				
健康 Healthy		年金保険	労災保険	

日付 Test 1  
氏名 Testee 11

Public - Social insurance 日本

	病気の発生(働けないリスク) Illness (Risk of unable to work)			被保険者の死後(養えないリスク) After death (Unable to provide family)
	医療費 Treatment cost	被保険者の生活費 Cost of living - Insured	家族の生活費 Cost of living - Family	家族の生活費 Cost of living - Family
死亡 Death				遺族年金
介護 Eldery Care	高額介護費支払 介護保険			
自宅療養 Home remedy		労災保険		
入院療養 Hospitalized	高額療養費支払 公的医療保険			
手術 Surgery				
疾病が判明 Being diagnosed				
調子が良くない Not feeling well				
健康 Healthy		雇用保険		

日付  
氏名

Test 1  
Testee 12

Private insurance  
日本

	病気療養中(働けないリスク) Illness (Risk of unable to work)			被保険者の死後(養えないリスク) After death (Unable to provide family)
	医療費 Treatment cost	被保険者の生活費 Cost of living - Insured	家族の生活費 Cost of living - Family	家族の生活費 Cost of living - Family
死亡 Death				傷害保険、定期保険 終身保険、養老保険
介護 Eldery Care		介護保険	介護保険	
自宅療養 Home remedy	がん保険、傷害保険 医療保険			
入院療養 Hospitalized	がん保険、傷害保険 医療保険	医療保険	医療保険	
手術 Surgery	がん保険、傷害保険 医療保険	医療保険		
疾病が判明 Being diagnosed	がん保険、傷害保険			
調子が良くない Not feeling well				
健康 Healthy				

日付  
氏名

Test 1  
Testee 12

Public - Social insurance  
日本

	病気療養中(働けないリスク) Illness (Risk of unable to work)			被保険者の死後(養えないリスク) After death (Unable to provide family)
	医療費 Treatment cost	被保険者の生活費 Cost of living - Insured	家族の生活費 Cost of living - Family	家族の生活費 Cost of living - Family
死亡 Death				遺族年金
介護 Eldery Care		介護保険		
自宅療養 Home remedy				
入院療養 Hospitalized	健康保険 70%			
手術 Surgery	健康保険 70%			
疾病が判明 Being diagnosed				
調子が良くない Not feeling well				
健康 Healthy		労災保険 産前産後 公的年金	労災保険 公的年金	

日付  
氏名

Test 1  
Testee 13

Private 民間  
insurance  
日本

	病状療養中(働けないリスク) Illness (Risk of unable to work)			被保険者の死後(養えないリスク) After death (Unable to provide family)
	医療費 Treatment cost	被保険者の生活費 Cost of living - Insured	家族の生活費 Cost of living - Family	家族の生活費 Cost of living - Family
死亡 Death				死亡-後遺障害保険金
介護 Eldery Care			<del>死亡保険金</del> ↑	
自宅療養 Home remedy			介護保険 介護保険	
入院療養 Hospitalized		入院保険金	※	
手術 Surgery		手術保険金		
疾病が判明 Being diagnosed		通院保険金	3大疾病保障保険	
調子が良くない Not feeling well				
健康 Healthy				

日付  
氏名

Test 1  
Testee 13

Public -  
Social insurance  
日本

	病状療養中(働けないリスク) Illness (Risk of unable to work)			被保険者の死後(養えないリスク) After death (Unable to provide family)
	医療費 Treatment cost	被保険者の生活費 Cost of living - Insured	家族の生活費 Cost of living - Family	家族の生活費 Cost of living - Family
死亡 Death			土曜こう料 <del>死亡保険金</del>	
介護 Eldery Care				
自宅療養 Home remedy		傷病手当金 入院時食事生活療養費	家族療養費 高額	
入院療養 Hospitalized				
手術 Surgery				
疾病が判明 Being diagnosed				
調子が良くない Not feeling well				
健康 Healthy				

日付  
氏名

Test 2  
Pair G

Public & Private

日本

	病気療養中(働けないリスク) Illness (Risk of unable to work)			被保険者の死後(働えないリスク) After death (Unable to provide family)
	医療費 Treatment cost	被保険者の生活費 Cost of living - Insured	家族の生活費 Cost of living - Family	家族の生活費 Cost of living - Family
死亡 Death				死亡年金、遺族年金 公保・国保
介護 Eldery Care	公的・民間介護 X	公的・民間介護	X	
自宅療養 Home remedy	下 在宅・特約 公保・国保、 介護保険、介護保険	公的・民間介護 特約、収入保障保険	X	
入院療養 Hospitalized	在宅療養 公保・国保、 介護保険、介護保険	特約 収入保障保険	X	
手術 Surgery	↑ ↑	特約	X	
疾病が判明 Being diagnosed	在宅療養	特約・介護保険	←	
調子が良くない Not feeling well	X	X	X	
健康 Healthy	X	在宅療養・介護保険 特約・収入保障	全量国保・介護、 介護保険、収入保障	

日付  
氏名

Test 1  
Testee 14

Private  
insurance

日本

	病気療養中(働けないリスク) Illness (Risk of unable to work)			被保険者の死後(働えないリスク) After death (Unable to provide family)
	医療費 Treatment cost	被保険者の生活費 Cost of living - Insured	家族の生活費 Cost of living - Family	家族の生活費 Cost of living - Family
死亡 Death				個人年金 国保 公保と国保
介護 Eldery Care	介護	-	-	
自宅療養 Home remedy	↑ 在宅療養	特約	-	
入院療養 Hospitalized	特約・介護 公保・国保	特約	-	
手術 Surgery	特約(特約)	特約	-	
疾病が判明 Being diagnosed	特約(特約)	-	-	
調子が良くない Not feeling well	-	-	-	
健康 Healthy	-	-	-	

日付  
氏名

Test 1  
Testee 14

Public -  
Social insurance  
日本

	病気療養中(働けないリスク) Illness (Risk of unable to work)			被保険者の死後(働えないリスク) After death (Unable to provide family)
	医療費 Treatment cost	被保険者の生活費 Cost of living - Insured	家族の生活費 Cost of living - Family	家族の生活費 Cost of living - Family
死亡 Death	-	-	-	25,940,000円
介護 Eldery Care	公的介護保険	なし	-	-
自宅療養 Home remedy	+	-	-	-
入院療養 Hospitalized	+	-	-	-
手術 Surgery	高額医療、特約	-	-	-
疾病が判明 Being diagnosed	-	-	-	-
調子が良くない Not feeling well	-	-	-	-
健康 Healthy	-	-	-	-

日付  
氏名

Test 1  
Testee 15

Private  
insurance  
日本

	病気療養中(働けないリスク) Illness (Risk of unable to work)			被保険者の死後(働えないリスク) After death (Unable to provide family)
	医療費 Treatment cost	被保険者の生活費 Cost of living - Insured	家族の生活費 Cost of living - Family	家族の生活費 Cost of living - Family
死亡 Death	-	-	-	任意の国保再 生保険
介護 Eldery Care	-	介護保険	-	-
自宅療養 Home remedy	医療保険 から保険	厚生年金 国民年金	-	-
入院療養 Hospitalized	同じ	-	-	-
手術 Surgery	同上	-	-	-
疾病が判明 Being diagnosed	-	-	-	-
調子が良くない Not feeling well	-	-	-	-
健康 Healthy	-	旅行保険 コトク保険 火災補償 地震	任意の国保再 生保険	-

日付  
氏名

Test 1  
Testee 16

Public -  
Social insurance  
日本

	病状療養中(働けないリスク) Illness (Risk of unable to work)			被保険者の死後(働えないリスク) After death (Unable to provide family)
	医療費 Treatment cost	被保険者の生活費 Cost of living - Insured	家族の生活費 Cost of living - Family	家族の生活費 Cost of living - Family
死亡 Death				× (遺族生活)
介護 Eldery Care	← 介護費	介護費	×	
自宅療養 Home remedy	公的介護費	公的介護費	×	
入院療養 Hospitalized	個室介護 公的介護費	個室介護	個室介護	
手術 Surgery	健康増進	×	+	
疾病が判明 Being diagnosed	×	障害...	×	
調子が良くない Not feeling well	×	(介護費)	×	
健康 Healthy	×	×	×	

日付  
氏名

Test 1  
Testee 16

Private  
insurance  
日本

	病状療養中(働けないリスク) Illness (Risk of unable to work)			被保険者の死後(働えないリスク) After death (Unable to provide family)
	医療費 Treatment cost	被保険者の生活費 Cost of living - Insured	家族の生活費 Cost of living - Family	家族の生活費 Cost of living - Family
死亡 Death				遺族生活
介護 Eldery Care	×	介護費	×	
自宅療養 Home remedy	通院費	公的介護費	×	
入院療養 Hospitalized	入院費	公的介護費	×	
手術 Surgery	手術費	×	×	
疾病が判明 Being diagnosed	手術一時金 お祝い金	×	×	
調子が良くない Not feeling well	×	×	×	
健康 Healthy	×	×	×	

日付  
氏名

Test 2  
Par H

Public & Private

日本

	病状療養中(働けないリスク) Illness (Risk of unable to work)			被保険者の死後(働えないリスク) After death (Unable to provide family)
	医療費 Treatment cost	被保険者の生活費 Cost of living - Insured	家族の生活費 Cost of living - Family	家族の生活費 Cost of living - Family
死亡 Death				大目 RISE.
介護 Eldery Care	介護保険 障害者への	障害者への	障害者への 生活補償対応。	
自宅療養 Home remedy	健康保険 労災保険	→ 労災保険	→ 労災保険	
入院療養 Hospitalized	労災保険 高額療養費制度 Zipp	傷病手当金 労災保険	→	
手術 Surgery	→ Cure	有給休暇 労災保険	→	
疾病が判明 Being diagnosed	労災保険 健康保険			
調子が良くない Not feeling well	医師受診	有給休暇	有給休暇	
健康 Healthy	N/A.	労災保険	労災保険	

日付  
氏名

Test 1  
Testee 17

Public -  
Social insurance

日本

	病状療養中(働けないリスク) Illness (Risk of unable to work)			被保険者の死後(働えないリスク) After death (Unable to provide family)
	医療費 Treatment cost	被保険者の生活費 Cost of living - Insured	家族の生活費 Cost of living - Family	家族の生活費 Cost of living - Family
死亡 Death				死亡手当
介護 Eldery Care	介護保険	N/A	N/A	
自宅療養 Home remedy	労災保険	傷病手当金 労災保険	傷病手当金 労災保険	
入院療養 Hospitalized	労災保険 高額療養費制度	傷病手当金 労災保険	傷病手当金 労災保険	
手術 Surgery	労災保険 高額療養費制度	有給休暇 労災保険	有給休暇 労災保険	
疾病が判明 Being diagnosed	労災保険 健康保険	N/A	N/A	
調子が良くない Not feeling well	N/A	有給休暇	有給休暇	
健康 Healthy	N/A	N/A	N/A	



日付  
氏名

Test 1  
Testee 17

Private  
insurance  
日本

	病状療養中(働けないリスク) Illness (Risk of unable to work)			被保険者の死後(養えないリスク) After death (Unable to provide family)
	医療費 Treatment cost	被保険者の生活費 Cost of living - Insured	家族の生活費 Cost of living - Family	家族の生活費 Cost of living - Family
死亡 Death	-	-	-	大川村人 6.75万円 介護スポンサー
介護 Eldery Care	雇者の備え	雇者の備え	雇者の備え	-
自宅療養 Home remedy	-	6.75万円	6.75万円	-
入院療養 Hospitalized	7.5万円	6.75万円	6.75万円	-
手術 Surgery	7.5万円	-	-	-
疾病が判明 Being diagnosed	-	-	-	-
調子が良くない Not feeling well	-	-	-	-
健康 Healthy	-	-	-	-

日付  
氏名

Test 1  
Testee 18

Private  
insurance  
日本

	病状療養中(働けないリスク) Illness (Risk of unable to work)			被保険者の死後(養えないリスク) After death (Unable to provide family)
	医療費 Treatment cost	被保険者の生活費 Cost of living - Insured	家族の生活費 Cost of living - Family	家族の生活費 Cost of living - Family
死亡 Death	-	-	-	オリビア 6.75万円 扶養スポンサー
介護 Eldery Care	-	-	雇者の備え	-
自宅療養 Home remedy	-	6.75万円	6.75万円	-
入院療養 Hospitalized	入院費用 5万円 2.75万円 (1.75万円)	-	-	-
手術 Surgery	手術費用 5万円 2.75万円 (1.75万円)	-	-	-
疾病が判明 Being diagnosed	-	-	-	-
調子が良くない Not feeling well	-	-	-	-
健康 Healthy	-	-	-	-

日付  
氏名

Test 1  
Testee 18

Public -  
Social insurance  
日本

	病気の発生(働けないリスク) Illness (Risk of unable to work)			被保険者の死後(養えないリスク) After death (Unable to provide family)
	医療費 Treatment cost	被保険者の生活費 Cost of living - Insured	家族の生活費 Cost of living - Family	家族の生活費 Cost of living - Family
死亡 Death				
介護 Elderly Care	介護保険			
自宅療養 Home remedy	健康保険			
入院療養 Hospitalized	健康保険			
手術 Surgery				
疾病が判明 Being diagnosed				
調子が良くない Not feeling well				
健康 Healthy				

日付  
氏名

Test 1  
Testee 19

Private  
insurance  
日本

	病気の発生(働けないリスク) Illness (Risk of unable to work)			被保険者の死後(養えないリスク) After death (Unable to provide family)
	医療費 Treatment cost	被保険者の生活費 Cost of living - Insured	家族の生活費 Cost of living - Family	家族の生活費 Cost of living - Family
死亡 Death				生命保険
介護 Elderly Care			介護保険	
自宅療養 Home remedy				
入院療養 Hospitalized				
手術 Surgery				
疾病が判明 Being diagnosed				
調子が良くない Not feeling well				
健康 Healthy				

日付	Test 1			
氏名	Testee 19			
Public - Social insurance 日本	病状療養中(働けないリスク) Illness (Risk of unable to work)			被保険者の死後(働えないリスク) After death (Unable to provide family)
	医療費 Treatment cost	被保険者の生活費 Cost of living - Insured	家族の生活費 Cost of living - Family	家族の生活費 Cost of living - Family
死亡 Death				国民皆保険
介護 Eldery Care				
自宅療養 Home remedy				
入院療養 Hospitalized				
手術 Surgery				
疾病が判明 Being diagnosed	国民皆保険			
調子が良くない Not feeling well				
健康 Healthy				

日付	Test 1			
氏名	Testee 20			
Public - Social insurance 日本	病状療養中(働けないリスク) Illness (Risk of unable to work)			被保険者の死後(働えないリスク) After death (Unable to provide family)
	医療費 Treatment cost	被保険者の生活費 Cost of living - Insured	家族の生活費 Cost of living - Family	家族の生活費 Cost of living - Family
死亡 Death				厚生年金保険 労災保険
介護 Eldery Care	介護保険	N/A	N/A	
自宅療養 Home remedy	介護保険			
入院療養 Hospitalized	労災保険			
手術 Surgery	健康保険 労災保険			
疾病が判明 Being diagnosed				
調子が良くない Not feeling well				
健康 Healthy				

日付  
氏名

Test 1  
Testee 20

Private  
insurance  
日本

	病状発症中(働けないリスク) Illness (Risk of unable to work)			被保険者の死後(養えないリスク) After death (Unable to provide family)
	医療費 Treatment cost	被保険者の生活費 Cost of living - Insured	家族の生活費 Cost of living - Family	家族の生活費 Cost of living - Family
死亡 Death				生命保険
介護 Eldery Care				
自宅療養 Home remedy		N/A	N/A	
入院療養 Hospitalized	がん保険			
手術 Surgery	がん保険 生命保険			
疾病が判明 Being diagnosed	がん保険			
調子が良くない Not feeling well				
健康 Healthy				

## Appendix C.

### [Pre\_Questionnaire\_Japanese\_ver]

Q14 【事前アンケート】この度は、修士論文の検証にご参加いただきありがとうございます。「保険」に関してご自身の経験およびご意見をお聞かせください。なお、個人情報は本研究以外では使用しません。

Q1 年齢

- 18歳未満 (35)
- 18 - 24歳 (36)
- 25 - 34歳 (37)
- 35 - 44歳 (38)
- 45 - 54歳 (39)
- 55 - 64歳 (40)
- 65 - 74歳 (41)
- 75 - 84歳 (42)
- 85歳以上 (43)

Q2 性別

- 男性 (2)
- 女性 (3)

Q3 現在、ご結婚されていますか？

- 未婚 (1)
- 既婚 (2)

Q4 職業

Q5 所属

- 生命保険会社勤務あり (1)
- SDM(新卒・就労経験なし) (2)
- SDM(社会人・就労経験あり) (3)
- SDM(教員・職員) (4)
- その他 (6) \_\_\_\_\_

Q6 氏名本検証において、事前・事後の2回のアンケートにお答えいただきます。アンケートを統合して集計する関係上、ご氏名あるいはニックネームをご記入ください。(事前・事後ともに同じ名称をご記入ください。)

Q10 保険の契約を持っていますか？(種類は問いません)

- 強く同意する (25)
- どちらかといえば同意する (26)
- どちらでもない (27)
- どちらかといえば同意しない (28)
- まったく同意しない (29)

Q7 保険の仕組みを理解していますか？

- 強く同意する (13)
- どちらかといえば同意する (14)
- どちらでもない (15)
- どちらかといえば同意しない (16)
- まったく同意しない (17)

Q8 自分に必要な保険がわかりますか？

- 強く同意する (13)
- どちらかといえば同意する (14)
- どちらでもない (15)
- どちらかといえば同意しない (16)
- まったく同意しない (17)

Q13 その理由を教えてください。

Q9 保険に入る必要があると思いますか？

- 強く同意する (13)
- どちらかといえば同意する (14)
- どちらでもない (15)
- どちらかといえば同意しない (16)
- まったく同意しない (17)

Q15 その理由を教えてください。

Q12 既存の契約の見直しや新規に加入する必要性を感じますか？

- 強く同意する (13)
- どちらかといえば同意する (14)
- どちらでもない (15)
- どちらかといえば同意しない (16)
- まったく同意しない (17)

Q16 その理由を教えてください。

[Post-Questionnaire\_Japanese\_ver]

Q1 【事後アンケート】この度は、修士論文の検証にご参加いただきありがとうございます。「保険」に関してご自身の経験およびご意見をお聞かせください。なお、個人情報は本研究以外では使用しません。

Q2 氏名本検証において、事前・事後の2回のアンケートにお答えいただきます。アンケートを統合して集計する関係上、ご氏名あるいはニックネームをご記入ください。(事前・事後ともに同じ名称をご記入ください。)

Q3 保険の仕組みを理解することができましたか？

- 強く同意する (1)
- どちらかといえば同意する (2)
- どちらでもない (3)
- どちらかといえば同意しない (4)
- まったく同意しない (5)

Q4 その理由を教えてください。

Q5 自分に必要な保険がわかりましたか？

- 強く同意する (1)
- どちらかといえば同意する (2)
- どちらでもない (3)
- どちらかといえば同意しない (4)
- まったく同意しない (5)

Q6 その理由を教えてください。

Q7 保険に入る必要があると思いませんか？

- 強く同意する (1)
- どちらかといえば同意する (2)
- どちらでもない (3)
- どちらかといえば同意しない (4)
- まったく同意しない (5)

Q8 その理由を教えてください



Q9 既存の契約の見直しや新規に加入する必要性を感じましたか？

- 強く同意する (1)
- どちらかといえば同意する (2)
- どちらでもない (3)
- どちらかといえば同意しない (4)
- まったく同意しない (5)

Q10 その理由を教えてください。

Q11 このマトリックスは保険の選定に利用できますか？

- 強く同意する (1)
- どちらかといえば同意する (2)
- どちらでもない (3)
- どちらかといえば同意しない (4)
- まったく同意しない (5)

Q12 その理由を教えてください。

Q13 【公的社会保険】作成するのは簡単でしたか？

- 強く同意する (1)
- どちらかといえば同意する (2)
- どちらでもない (3)
- どちらかといえば同意しない (4)
- まったく同意しない (5)

Q14 その理由を教えてください

Q15 【公的社会保険】必要な情報を入手するのは簡単でしたか？

- 強く同意する (1)
- どちらかといえば同意する (2)
- どちらでもない (3)
- どちらかといえば同意しない (4)
- まったく同意しない (5)

Q16 その理由を教えてください。

Q17 【民間生命保険】作成するのは簡単でしたか？

- 強く同意する (1)
- どちらかといえば同意する (2)
- どちらでもない (3)
- どちらかといえば同意しない (4)
- まったく同意しない (5)

Q18 その理由を教えてください。

Q19 【民間生命保険】必要な情報を入手するのは簡単でしたか？

- 強く同意する (1)
- どちらかといえば同意する (2)
- どちらでもない (3)
- どちらかといえば同意しない (4)
- まったく同意しない (5)

Q20 その理由を教えてください。

Q21 【ペアでの作業】相手が作成したものを理解するのは簡単でしたか？

- 強く同意する (1)
- どちらかといえば同意する (2)
- どちらでもない (3)
- どちらかといえば同意しない (4)
- まったく同意しない (5)

Q22 その理由を教えてください

Q23 【ペアでの作業】自分が作成したものを説明するのは簡単でしたか？

- 強く同意する (1)
- どちらかといえば同意する (2)
- どちらでもない (3)
- どちらかといえば同意しない (4)
- まったく同意しない (5)

Q24 その理由を教えてください。

Q25 【ペアでの作業】統合版を作成するのは簡単でしたか？

- 強く同意する (1)
- どちらかといえば同意する (2)
- どちらでもない (3)
- どちらかといえば同意しない (4)
- まったく同意しない (5)

Q26 その理由を教えてください。

Q27 全体を通じて、ご自由にご意見・ご感想をお聞かせください。

[Pre-Questionnaire\_English\_ver]

Q14 [Pre-Questionnaire] Thank you for your time participating in thesis verification. Personal information will only be used for the thesis and will not be used for any other purposes.

Q1 Age

- Under 18 (1)
- 18 - 24 (2)
- 25 - 34 (3)
- 35 - 44 (4)
- 45 - 54 (5)
- 55 - 64 (6)
- 65 - 74 (7)
- 75 - 84 (8)
- Over 85 (9)

Q2 Sex

- Male (1)
- Female (2)

Q3 Marital Status

- Single (1)
- Married (2)

Q4 Occupation

Q5 Affiliation

- Working at life insurance company (1)
- SDM (New graduate / No working experience) (2)
- SDM (Working Adult / Has working experience) (3)
- SDM (Faculty/Staff) (4)
- Others (5)

Q6 Name

Q10 Do you have insurance contract ? (Any type of insurance is acceptable)

- I have life insurance contract (1)
- I have general insurance contract (2)
- I have both life & general insurance contract (3)
- I don't have any (4)
- I don't know (5)

Q7 Do you understand the structure of insurance ?

- Strongly agree (1)
- Somewhat agree (2)
- Neither agree nor disagree (3)
- Somewhat disagree (4)
- Strongly disagree (5)

Q8 Do you know what kind of insurance you need ?

- Strongly agree (1)
- Somewhat agree (2)
- Neither agree nor disagree (3)
- Somewhat disagree (4)
- Strongly disagree (5)

Q13 Please describe the reason why you think so.

Q9 Do you think you need to have insurance contract ?

- Strongly agree (1)
- Somewhat agree (2)
- Neither agree nor disagree (3)
- Somewhat disagree (4)
- Strongly disagree (5)

Q15 Please describe the reason why you think so.

Q12 Do you think you need to review your current contract or join a new contract ?

- Strongly agree (1)
- Somewhat agree (2)
- Neither agree nor disagree (3)
- Somewhat disagree (4)
- Strongly disagree (5)

Q16 Please describe the reason why you think so.

[Post-Questionnaire\_English\_ver]

Q1 [Post-Questionnaire] Thank you for your time participating in thesis verification. Personal information will only be used for the thesis and will not be used for any other purposes.

Q2 Name

Q3 Were you able to understand the structure of insurance ?

- Strongly agree (1)
- Somewhat agree (2)
- Neither agree nor disagree (3)
- Somewhat disagree (4)
- Strongly disagree (5)

Q4 Please describe the reason why you think so.

Q5 Were you able to understand the insurance which is necessary for you ?

- Strongly agree (1)
- Somewhat agree (2)
- Neither agree nor disagree (3)
- Somewhat disagree (4)
- Strongly disagree (5)

Q6 Please describe the reason why you think so.

Q7 Do you think you need to have insurance contract ?

- Strongly agree (1)
- Somewhat agree (2)
- Neither agree nor disagree (3)
- Somewhat disagree (4)
- Strongly disagree (5)

Q8 Please describe the reason why you think so.

Q9 Do you think you need to review your current contract or join a new contract ?

- Strongly agree (1)
- Somewhat agree (2)
- Neither agree nor disagree (3)
- Somewhat disagree (4)
- Strongly disagree (5)

Q10 Please describe the reason why you think so.

Q11 Do you think this matrix can be used to choose insurance ?

- Strongly agree (1)
- Somewhat agree (2)
- Neither agree nor disagree (3)
- Somewhat disagree (4)
- Strongly disagree (5)

Q12 Please describe the reason why you think so.

Q13 **【Public Social Insurance】** Was it easy to create ?

- Strongly agree (1)
- Somewhat agree (2)
- Neither agree nor disagree (3)
- Somewhat disagree (4)
- Strongly disagree (5)

Q14 Please describe the reason why you think so.

Q15 **【Public Social Insurance】** Was it easy to get necessary information ?

- Strongly agree (1)
- Somewhat agree (2)
- Neither agree nor disagree (3)
- Somewhat disagree (4)
- Strongly disagree (5)

Q16 Please describe the reason why you think so.



Q17 【Private Life Insurance】 Was it easy to create ?

- Strongly agree (1)
- Somewhat agree (2)
- Neither agree nor disagree (3)
- Somewhat disagree (4)
- Strongly disagree (5)

Q18 Please describe the reason why you think so.

Q19 【Private Life Insurance】 Was it easy to get necessary information ?

- Strongly agree (1)
- Somewhat agree (2)
- Neither agree nor disagree (3)
- Somewhat disagree (4)
- Strongly disagree (5)

Q20 Please describe the reason why you think so.

Q21 【Peer Review】 Was it easy to understand what others have created ?

- Strongly agree (1)
- Somewhat agree (2)
- Neither agree nor disagree (3)
- Somewhat disagree (4)
- Strongly disagree (5)
- Have not worked in pairs (6)

Q22 Please describe the reason why you think so.

Q23 【Peer Review】 Was it easy to explain what you have made to the others ?

- Strongly agree (1)
- Somewhat agree (2)
- Neither agree nor disagree (3)
- Somewhat disagree (4)
- Strongly disagree (5)
- Have not worked in pairs (6)

Q24 Please describe the reason why you think so.

Q25 【Peer Review】 Was it easy to create in pairs ?

- Strongly agree (1)
- Somewhat agree (2)
- Neither agree nor disagree (3)
- Somewhat disagree (4)
- Strongly disagree (5)
- Was it easy to explain what you have made to the others ? (6)

Q26 Please describe the reason why you think so.

Q27 Please allow me to hear your opinion and comment.

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