

| LEVEL 7 ASSESSMENT SPECIFICATION |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                      |                     |
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| Student name:                    | Albert YS CHIU                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Student ID number:                                   | 2235236             |
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## 1. Introduction

### **Title: Can Online Insurance Improve the Insurance Mortality Protection Gap ? – A Case Study for Hong Kong Virtual Insurers.**

#### **1.1 Background**

Life insurance is specifically designed to offer financial assistance to dependents or beneficiaries in the unfortunate event of a policyholder's unexpected death. The Insurance Mortality Protection Gap (MPG) serves as a metric that quantifies the disparity between the desired amount of insurance coverage and the actual coverage held by individuals. Typically, the evaluation of insurance MPG is performed at a national or regional level, providing an indication of the extent of underinsurance within a population.

Several reputable organizations, such as the Geneva Association, the Swiss Re Institute, the Insurance Authority and the World Bank Group have released reports indicating a widening MPG in recent times. In particular, the insurance regulator in Hong Kong, the Insurance Authority, issued its inaugural report titled "Mortality Protection Gap Study 2021". The report indicated that the total MPG of Hong Kong in 2019 reached HKD 6.9 trillion, which translates into an individual MPG of HKD 1.9 million per working adult in Hong Kong, or 5.7 times their average annual income. The report recommended that Hong Kong citizens to review their insurance coverage regularly to reassess their MPG due to different financial needs and changes in life stages.

The term "InsurTech" pertains to the use of advanced technology in the insurance sector. Previous studies have indicated that InsurTech is revolutionizing the insurance industry by enhancing insurance product distribution, faster and better customer experience. In Hong Kong, insurance companies that adopt InsurTech and exclusively distribute their insurance products online are licensed as "Virtual Insurers".

Existing research primarily focuses on explaining the factors contributing to wider insurance MPG and proposing potential remedies to bridge the gap. Numerous quantitative studies have quantified the magnitude and trajectory of the Insurance MPG, examining its manifestations in specific regions such as Asia, Korea, Japan, India, the United States, Finland, Hong Kong, Malaysia, Pakistan, Singapore and Turkey. Additionally, there are studies dedicated to exploring the evolution of InsurTech and its development over the past two decades and its transformative impact on the insurance industry.

However, limited research has examined the correlation between insurance MPG and InsurTech. Various reviews from esteemed institutions such as the World Bank and insurance regulators concur that InsurTech can serve as a possible low-cost solution for reducing insurance MPG. A real case example in China explores the impact of InsurTech on micro-insurance, providing evidence of its potential to address insurance MPG.

## **1.2 Research Aims and Objectives**

Limited research has investigated the impact of the establishment of Virtual Insurers on the insurance MPG of Hong Kong citizens. This project aims to obtain a better understanding of the following research questions:

- (1) Do Hong Kong consumers understand their own insurance MPG?
- (2) As the adoption of InsurTech increases, what factors influence Hong Kong consumers when purchasing insurance through the online InsurTech platform? Do consumers prefer a self-service online process offered by Virtual Insurers or more detailed guidance from insurance intermediaries?
- (3) How does Hong Kong consumers' decision to purchase life insurance policies through on-line platforms can address their insurance MPG?

The adoption of InsurTech by Virtual Insurers allows Hong Kong consumers to purchase life insurance through an online platform. This quantitative research project investigate how this new emerging distribution channel influences insurance MPG in

Hong Kong. This study also aims to provide insights into the perceptions of InsurTech among Hong Kong citizens and evaluate how this may narrow their insurance MPG.

This quantitative research project developed a survey instrument to collect 48 usable samples through convenience sampling. The participants were invited to complete a questionnaire with 28 questions covering (a) attitude toward life insurance sales process; (b) perceived ease of use to buy insurance online (convenience) ; (c) perceived usefulness (price consciousness); (d) trust (acceptance of perceived risks) on online insurance platform; and (e) their awareness of insurance MPG.

### **1.3 Contributions**

The findings of this project demonstrate that the adoption of InsurTech has a beneficial effect on reducing the insurance MPG by enhancing the availability and affordability of insurance products, and providing a better customer experience during the sales journey. These research findings offer valuable insights for government officials and regulators, insurers, InsurTech companies, industry practitioners and researchers interested in addressing the issues related to insufficient insurance coverage and improving the efficacy of life insurance policies. The project provides conclusions on practical implications and outlining potential avenues for future research.

## 2. Literature Review

In its long history, insurance plays a vital role in securing financial stability and safeguarding individuals and their families. InsurTech is a word emerged from "insurance" and "technology", it refers to the use of new innovative technology, such as the Internet of Things (IoT), online/mobile applications, blockchain, artificial intelligence (AI), machine learning, and big data analytics, etc. to transform the insurance industry (Chang, 2023). InsurTech can improve the insurance operation processes and provide better customer satisfaction (Chang, 2023; Stoeckli et al., 2018). In particular, it accomplished this by streamlining workflow, lowering operational costs (Igor et al., 2023), enhancing customer experience, developing new business models, reducing insurance premiums, driving new product innovations, exploring unreached markets and insurance needs.

### 2.1 Development of InsurTech

InsurTech was started in the early 2000s when internal and online insurance platforms caught extensive media attention. Initially, these platforms only provided customers with insurance quotes, but the functions expanded gradually including comparison of different insurance quotes, the ability for customers to review their insurance policy information online and make changes on their policy through designated insurance platforms. The establishment of Virtual Insurers in 2019 in Hong Kong has made substantial progress on distribution of insurance products through digital platform. Virtual Insurers have developed online platform(s) and mobile application(s), which allow Hong Kong to purchase life insurance policies online without human intervention, insurance claims can also submitted online to Virtual Insurers.

InsurTech can transform the insurance industry by addressing customer needs, enhancing efficiency and lowering operational costs. Traditional insurance companies have recognized the benefits of incorporating technology into their operations and use it to provide better customer service. InsurTech has the potential to reform the insurance market (Agarwal et al., 2022) through enhancements of various processes such as product pricing, marketing and sales, and new product distribution (Bruce et

al., 2018). InsurTech also improves customer satisfaction in the sales journey, faster underwriting and claim processes and process optimization (Pillay, 2018). Insurance companies using digital channels, IoT devices, AI, smart contracts and big data analytics to perform real-time risk assessments, and offer personalized insurance products to their customers. This simplifies the insurance underwriting process, provides quicker insurance policy approval time. As the insurance industry evolves and customer expectations change, InsurTech can undoubtedly deliver greater value to insurers and consumers.

In addition, insurance regulators no longer use reactive manual inspections; instead they have transitioned to proactive monitoring or supervision technology using open market big data. To adapt to technological progress in the insurance sector, regulators frequently create regulatory sandboxes and other InsurTech platforms that encourage innovation (FutureCIO, 2020; Insurance Authority, 2023a), which enabling further development of different InsurTech in the insurance value chain.

In 2019, the insurance regulator in Hong Kong introduced the concept of "Virtual Insurers". These entities operate under a unique regulatory license, which requires them to carry on insurance business in or from Hong Kong using solely digital distribution channels and market its insurance products online (with no support from insurance intermediaries) as a means to promote the development of Insurtech in Hong Kong (Insurance Authority, 2023b). There are currently four licensed Virtual Insurers in Hong Kong since 2019.

## **2.2 Insurance Mortality Protection Gap**

For life insurance, Insurance benefits should be adequate to support the ongoing financial needs of the family and settle any outstanding debts (Swiss Re, 2020). The Mortality Protection Gap (MPG) refers to the difference between the recommended level of life insurance coverage and the actual amount an individual is being covered for (Klein, 2020; Swiss Re, 2020). In other words, MPG measures how much a person is "under-insurance" or insufficient financial protection for dependents or beneficiaries against the risk of unexpected events (Premkumar, 2022; Insurance Authority, 2021).

MPG is typically measured at a national or regional level to gauge the extent of the uninsured portion within a jurisdiction / population. This measure offers valuable information to policymakers, regulators, market practitioners and researchers on risk exposure and identifies any need for government support to address the issue.



Figure 1: Graphical illustration of the Insurance Mortality Protection Gap  
(Swiss Re, 2015)

There are four key business reports issued by esteemed organizations on the measurement of MPG. These publications provide significant insights on the evolving trend of MPG globally, in Asian markets as well as in Hong Kong.

The International Finance Corporation (IFC) is a member of the World Bank Group, it published a paper in 2019 titled *"How Insurtech Can Address the Underinsurance Challenge in Emerging Markets"* (Holliday, 2019). The publication highlights the exponential growth of the InsurTech sector, which has led to disruption of the conventional insurance industry and created new opportunities in developing countries where insurance penetration is low and MPG is high.

The International Insurance Think Tank, the Geneva Association, specializes in insurance and risk management. It released a report titled *"Understanding and Addressing Global Insurance Protection Gaps"* in 2018 (The Geneva Association, 2018). The report examines the underlying factors of MPG and analyses the MPG in different jurisdictions using GDP levels, which represent various stages of economic growth. It not only provides some possible insights and solutions to insurers, government officials and regulators to MPG, but also presents potential business opportunities arising from MPG.

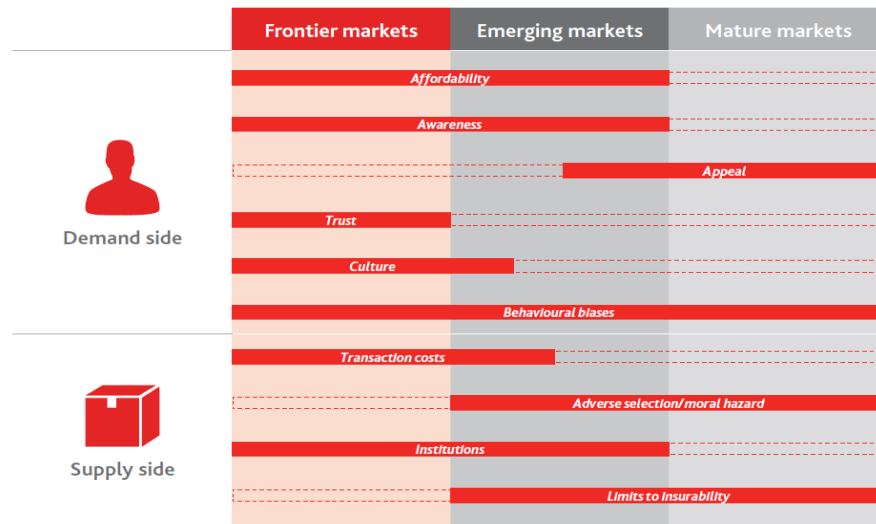


Figure 2: The Challenges Faced by Different Markets on Insurance Protection Gaps  
(The Geneva Association, 2018)

The Swiss Re Institute is the research arm of a global reinsurance company. It published a report titled "*Closing Asia's Mortality Protection Gap*" (Swiss Re, 2020) in 2020, which highlighted the vulnerability of Asia to negative occurrences such as fatalities, health emergencies, and environmental calamities. It estimated that the Asia-Pacific region has a MPG of USD 83 trillion in 2019, which has doubled since 2010 from USD 42 trillion, and this MPG is increasing by 4% annually. Having said that, the emergence of MPG presents significant business opportunities in Asia, which may generate extra demand for life protections with potential insurance premium of USD 292 billion annually. It is recognized as a comprehensive review Asian consumers' attitudes and preferences toward their MPG. The report covered over 14,000 consumers and 10 markets in the region. The data in the report provide a good source for tracking the trend of MPG.

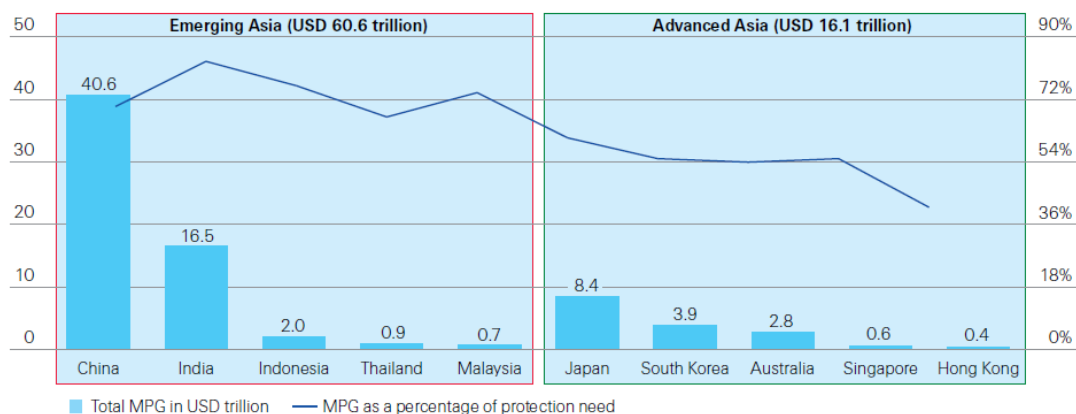


Figure 3: Mortality Protection Gap by Markets in Asia (Swiss Re, 2022)

The insurance regulator of Hong Kong released its inaugural report titled "*Mortality Protection Gap Study 2021*" (Insurance Authority, 2021). The report estimated the MPG in Hong Kong to be roughly HKD 6.9 trillion in 2019, which translated to HKD 1.9 million for each employed adult, i.e. about 5.7 times of their average annual income. The report urges the Hong Kong citizens to assess their MPG and insurance coverages regularly because of their different stages of life and financial circumstances.

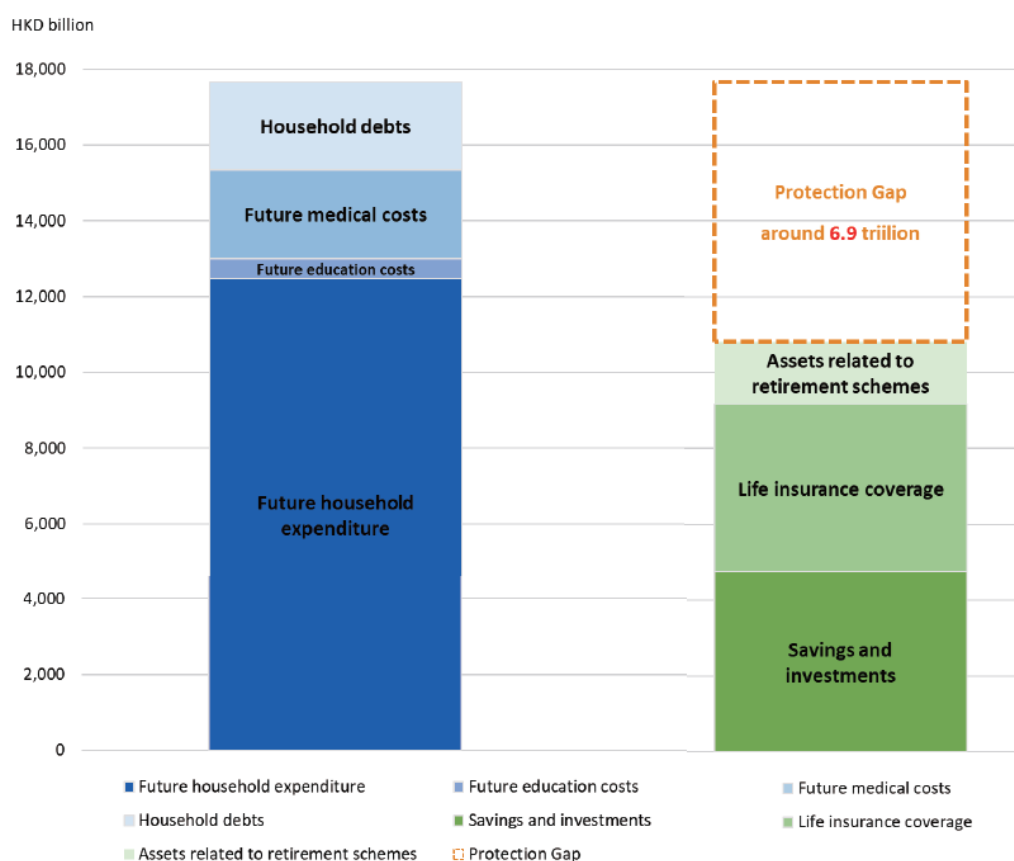


Figure 4: Protection Gap Identified in Mortality Protection Gap Study (Insurance Authority, 2021)

## 2.3 Use of InsurTech Insurance to Narrow the Mortality Protection Gap

The World Bank conducted a case study in China, which highlighted the successful reduction of MPG through the implementation of micro-insurance sold via InsurTech (Holliday, 2019). Another example highlighted that the adoption of InsurTech in data analytics can enhance the underwriting and claims processes (Rozar, 2017).

There are much quantitative research on the development of insurance MPG in the United States (Rutledge, 2018; Romero, 2016), Malaysia (Redzuan, 2016), Asia (Swiss Re, 2020), Korea & Japan (Jung et al., 2020), Pakistan (Khan et al., 2022), India (Premkumar, 2022), Hong Kong (Insurance Authority, 2021) and Finland (Ropponen et al., 2023). Researchers suggested various strategies to manage the MPG and attract more consumers to purchase insurance policies by offering value-added services (Klein, 2020). Cheaper insurance premium benefit from InsurTech (Holliday, 2019) and tax incentives or penalties for underinsurance (The Geneva Association, 2018) are additional strategies. Building consumer trust and confidence in insurance is crucial (The Geneva Association, 2018; Holliday, 2019; Klein, 2020; Luo et al., 2021), enhancing financial literacy among individuals (Klein, 2020; Dalkilic & Kirkbesoglu, 2015; Mahdzan & Victorian, 2013), employing behavioral economics principles to encourage individuals to pay attention to their MPG (The Geneva Association, 2018; Addis, 2014; Thaler & Sunstein, 2008), and offering affordable and flexible products to different demographic groups (The Geneva Association, 2018; Holliday, 2019). InsurTech can play a big role in supporting all these initiatives to narrow the MPG.

## **2.4 Theoretical Background**

To comprehend the impact of InsurTech on MPG, it is crucial to analyze pertinent theories, concepts and prior research. Previous studies indicate that the adoption of cutting-edge technologies can bolster effectiveness, decrease expenses, enhance the precision of risk assessment, and provide customized products that cater to individual requirements (Bacinello et al., 2019).

Previous research has demonstrated that consumer adoption of online insurance is influenced by factors such as consumer perception, trust, and attitudes. Many studies have used the Theory of Planned Behavior (TPB) or Technology Acceptance Model (TAM) to explore the impact of these factors.

TPB is an extension of the Theory of Reasoned Action (TRA), which is a social psychological theory that seeks to explain and predict human behavior by considering an individual's intentions, attitudes, beliefs, and perceived control over their actions

(Conner & Armitage, 1998; Brahmana et al., 2018). This theory can be applied to understand how individuals' behaviors and decision-making change when they choose to purchase insurance through online platforms instead of traditional insurance intermediary sales channels (Klein, 2020). A key limitation of TPB is that it assumes that individuals are rational and make deliberate decisions based on available information, thereby disregarding unconscious motives. In addition, TPB fails to account for factors such as demographic variables and personality. The assumption of TPB that perceived behavioral control consistently predicts actual behavioral control, which may not always hold true (Marangunić & Granić, 2018).

TAM is a theoretical framework that seeks to explain and predict the acceptance and adoption of new technologies by individuals or organizations. TAM has transformed into a significant framework for understanding the factors that influence human behavior in terms of accepting or rejecting a technology (Marangunić & Granić, 2018). TAM suggests that an individual's intention to use a technology is primarily influenced by three key factors: *perceived usefulness*, *perceived ease of use* and attitude toward using it (Davis, 1985).

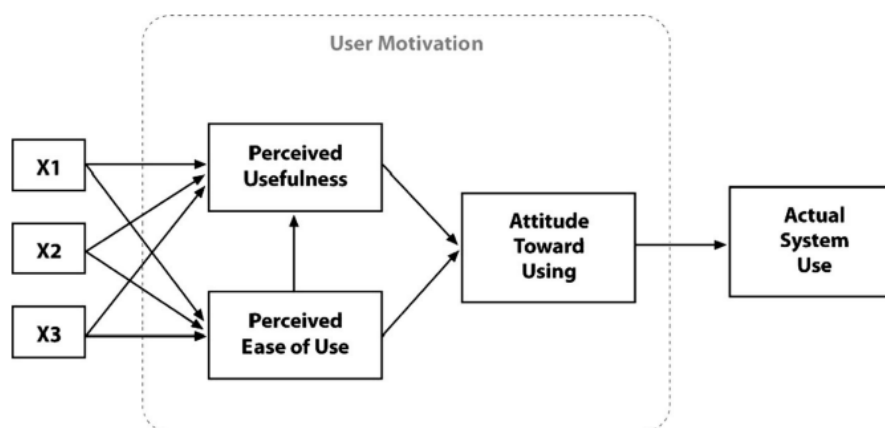


Figure 5: Technology acceptance model (Davis, 1985)

Perceived usefulness refers to an individual's belief that using a particular technology will enhance their performance or productivity in achieving specific goals. If a person believes that a technology will be beneficial and provide value in fulfilling their needs, they are more likely to have a positive attitude toward using it. Perceived ease of use refers to an individual's perception of how effortless or convenient it is to use a technology. Factors such as user-friendliness, simplicity, and clarity of instructions contribute to the perceived ease of use. If a technology is perceived as easy to use,

individuals are more likely to develop a positive attitude toward adopting it. These two factors directly influence an individual's attitude toward using a technology, which affects their intention to adopt and use it (Sharp, 2007; Marangunić & Granić, 2018).

In both frameworks, TPA and TAM, the consumers' intention to engage in online insurance is considered a precursor to actual adoption. Various factors that affect the adoption of online insurance are examined within this underlying mechanism, and their role in shaping behavioral intentions is investigated.

In addition, consumers' intention to adopt online insurance is positively impacted by their trust in the insurance product, the service provided and the insurance company (Lim et al., 2009; Luo et al., 2021). Trust plays a crucial role in influencing customer satisfaction in financial services, particularly in the context of online insurance services. Technology can address customers' trust-related expectations by ensuring security and system integrity (Balasubramanian et al., 2003; Khare et al., 2012), which enhance the intention of consumers to use online insurance services.

Existing studies have provided a conceptual understanding of consumers' adoption of online insurance, predominantly focusing on behavioral intention. With the establishment of Virtual Insurers in 2019, and there is a growing trend on online life insurance transactions in Hong Kong, however, it remains a huge MPG as reported by the Insurance Authority (Insurance Authority, 2021). The current literature does not provide any information regarding the impact of the establishment of Virtual Insurers on the size of MPG in Hong Kong. Thus, this project aims to extend previous research by reviewing the factors influencing Hong Kong consumers to purchase online life insurance products offered by Virtual Insurers, and how the consumers' awareness of MPG may impact their decision to purchase life insurance online in Hong Kong insurance market.

### 3. Analytical Framework and Hypotheses

#### 3.1 Conceptual Framework

The conceptual model employed in this project is illustrated in Figure 6. The model focuses on one dependent variable associated with the consumer's decision to buy life insurance online using InsurTech. The analysis examines five individual traits (a) attitude, (b) perceived ease of use, (c) perceived usefulness (price consciousness), (d) trust (acceptance of perceived risks), and (e) awareness of their insurance MPG, how these traits impact the decision the consumers made. Additionally, the project also review the impact of four consumers' demographic variables: sex, age, income and education.

The proposed conceptual framework extended the application from TPB and TAM, and suggests that actual use of online insurance platform (established by Virtual Insurers) in Hong Kong is expected to be influenced by the 5 traits mentioned above. In particular, the consumer's self-awareness of MPG would have a positive impact to their decision. The decision to purchase life insurance, would in turns narrow their insurance MPG. The proposed conceptual framework is illustrated in Figure 6 below:

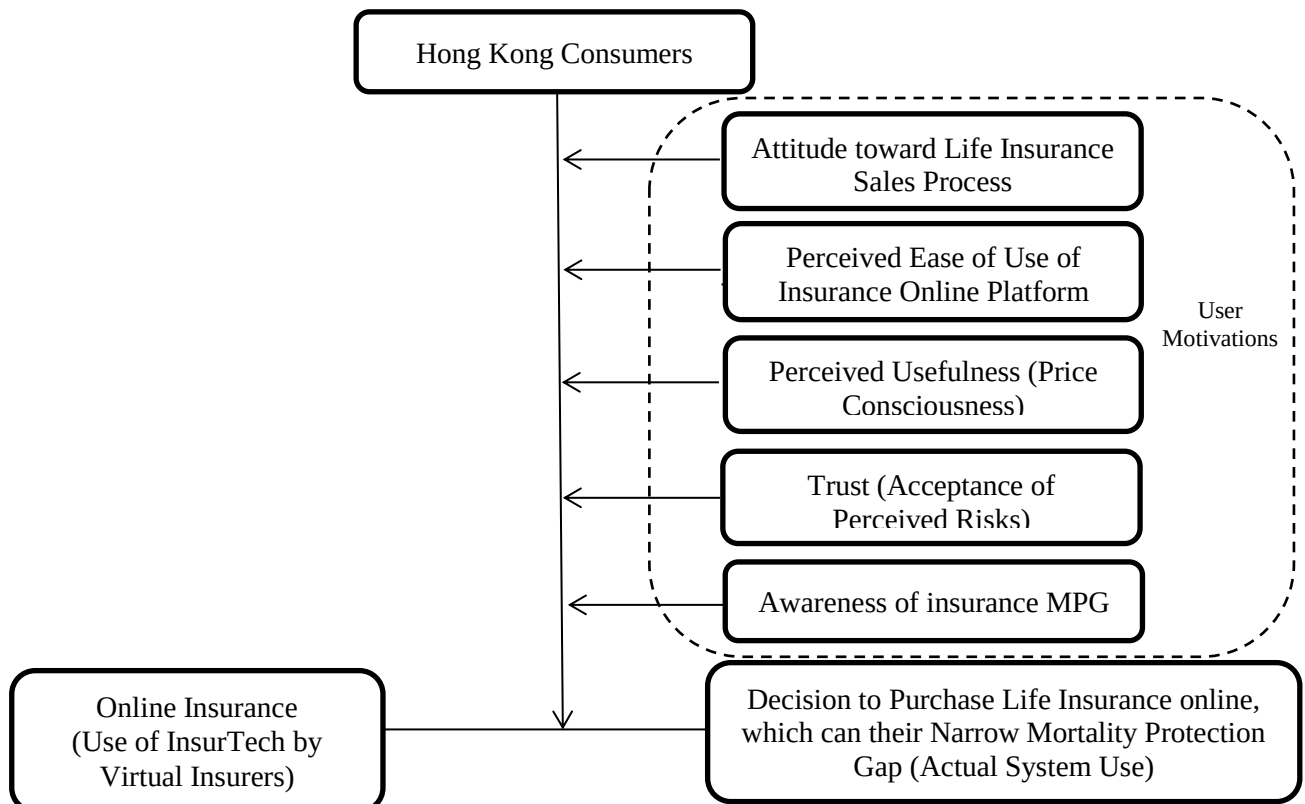


Figure 6: Proposed Conceptual Framework between the Use of InsurTech and Mortality Protection Gap in Hong Kong

### 3.2 Hypothesis

- Hypothesis (H1) : “Attitude toward life Insurance sales process” has a positive influence on the decision to purchase life insurance online.
- Hypothesis (H2) : “Perceived ease of use of insurance online platform” has a positive influence on the decision to purchase life insurance online.
- Hypothesis (H3) : “Perceived Usefulness (Price Consideration)” has a positive influence on the decision to purchase life insurance online.
- Hypothesis (H4) : “Trust (Acceptance of Perceived Risks)” has a positive influence on the decision to purchase life insurance online.
- Hypothesis (H5) : “Consumer’s self-awareness of insurance MPG” has a positive influence on the decision to purchase life insurance online.

## 4. Methodology

This project uses a quantitative research design to gather and analyze data. A cross-sectional survey was conducted to collect 48 useable samples about their personal preferences for purchasing life insurance policies through an online platform and their awareness of insurance MPG.

### 4.1 Survey Instrument and Expert Review

Based on earlier work by Nasrin & Dahana (2022) and Hanaysha et al. (2023), a structured questionnaire was prepared to collect data for this project. The questions in the questionnaire were reviewed by three subject matter experts with legal, insurance, risk and corporate communication backgrounds, who provided feedbacks on the language, structure, and formatting of the questionnaire, which helped to improve the clarity and relevancy of the questions, the alignment with the research objectives, the quality of the data collected and minimizes the risk of misinterpretation.

The language of four questions in the survey instrument was revised to provide more clarity, and six questions in the original questionnaire were removed as they were considered duplicated or irrelevant to the research topic. Three more questions were added to collect more demographic information, and a new section on attitude toward personal service versus online self-service and people interaction was added to the questionnaire for completeness.

The questionnaire consists of two sections:

- a) Demographic information: Participants were asked to provide their gender, age, income, educational background, experience on online shopping, and if they were Hong Kong citizens.
- b) 27 questions related to online insurance and MPG: Participants were asked to rate their perception and experience regarding online insurance and their self-awareness of their insurance MPG. The questionnaire was subdivided into five constructs:
  - i) Attitude toward the Life Insurance Online Sales Process
  - ii) Convenience to Buy Life Insurance Online (Perceived Ease of Use)

- iii) Price Consideration (Perceived Usefulness)
- iv) Privacy, Payment and Service Concerns (Trust/ Acceptance of Perceived Risks)
- v) Understand your Life Insurance Needs (Awareness of MPG)

The last question is on their likelihood to purchase life insurance online.

Participants were asked to provide ratings for each question using a scale ranging from 1 (representing strongly disagree) to 5 (representing strongly agree).

## **4.2 Data Collection and Sampling Technique**

Convenience sampling technique was employed to gather data from the general public in Hong Kong. Participants are selected on the basis of their availability and accessibility. Some participants may be individuals who have recently purchased insurance policies or have experience with online insurance platforms, other may have no experience on online insurance platforms.

A structured questionnaire was distributed to the participants through an online Google form through personal network between 16 to 24 December 2023. Participants were informed that their involvement in the study was voluntary, and they had the right to decline participation without any consequences.

Upon agreement to participate, participants were asked to complete the structured questionnaire above. The collected data were analyzed using descriptive statistics and inferential statistics to examine the relationship between personal preference for online insurance platform and the awareness of the insurance MPG.

A total of 52 samples were collected from the Google form, 4 samples were removed from the analysis due to unqualified answers (two samples selected “Strongly Disagree” for all questions in the survey, two samples are not Hong Kong citizens). Therefore, there are only 48 usable samples for further analysis.

Due to the small sample size and non-random sampling technique was used, there is a limitation on result from this project that it may not provide a representative sample of the population, and the findings may not be generalizable to a broader Hong Kong population. In addition, the project uses a Google form as the only medium for complete questionnaire, which is a potential bias because a participant with low digital literacy or no access to smartphone/the internet would not be able to participate in this survey.

The 48 usable sample data were analyzed using the JAMOVI statistical package. The participants' general characteristics were summarized using descriptive statistics. Linear regression analyses were employed to assess the relative influence of the 5 constructs (i.e., Attitude toward Online Sales Process, Perceived Ease of Use, Perceived Usefulness, Trust/Acceptance of Perceived Risk, Awareness of MPG) on the dependent variable (i.e. participant's decision to purchase insurance online).

This research project adheres to ethical guidelines and ensures participant confidentiality, informed consent, and voluntary participation. All data collected will be anonymized and used solely for research purposes.

## 5. Results and Discussion

### 5.1 Descriptive Statistics

The sample comprised 20 responses (42%) from females and 28 responses (58%) from males. Half of the respondents (50%) were aged between 41 to 50. 63% respondents had a monthly income of HK\$ 70,000 or above. 96% of the respondents had a University's Degree or above. Only two respondents did not have online shopping experience.

|                        | Sample Size | Percentage |
|------------------------|-------------|------------|
| Gender                 |             |            |
| Female                 | 20          | 42%        |
| Male                   | 28          | 58%        |
| Age Group              |             |            |
| 21-30                  | 1           | 2%         |
| 31-40                  | 10          | 21%        |
| 41-50                  | 24          | 50%        |
| 51 or above            | 13          | 27%        |
| Monthly Income (HK\$)  |             |            |
| \$20,001 - \$40,000    | 4           | 8%         |
| \$40,001 - \$70,000    | 14          | 29%        |
| \$70,001 - \$100,000   | 9           | 19%        |
| \$100,001 or above     | 21          | 44%        |
| Education Level:       |             |            |
| Diploma                | 2           | 4%         |
| University Degree      | 28          | 58%        |
| Master Degree or above | 18          | 38%        |
| <b>TOTAL</b>           | <b>48</b>   |            |

Table 1: Demographic Information of Survey Respondents

The mean scores and other descriptive statistics are presented in Table 2. Respondents were measured using a 5-point scale, where a higher number denotes a higher agreement with the statement. The mean scores of the 5 factors ranged from 2.63 to 3.90. There is a very diverse answer from the respondents as the answers ranging from 1 to 5 for most questions.

| Items                                                                                                                                 | Mean Score* | Median | SD   | Minimum | Maximum |
|---------------------------------------------------------------------------------------------------------------------------------------|-------------|--------|------|---------|---------|
| <b>Attitude toward Life Insurance Online Sales Process</b>                                                                            |             |        |      |         |         |
| A2. I enjoy online interactions more than face-to-face interactions.                                                                  | 3.17        | 3      | 1.10 | 1       | 5       |
| A3. I like to deal with many things by myself.                                                                                        | 3.56        | 4      | 1.07 | 1       | 5       |
| A5. I have good knowledge on insurance and do not need any advice from insurance agent.                                               | 2.90        | 3      | 1.23 | 1       | 5       |
| <b>Convenience to Buy Life Insurance Online (Perceived Ease of Use)</b>                                                               |             |        |      |         |         |
| C1. I find it easy to locate the information that I need from online insurance platforms.                                             | 2.94        | 3      | 0.93 | 1       | 5       |
| C3. I know how to solve most of the problems that arise during online insurance application.                                          | 2.94        | 3      | 1.00 | 1       | 5       |
| C4. I consider myself an expert online buyer.                                                                                         | 2.81        | 3      | 0.94 | 1       | 5       |
| C5. I am able to conduct transactions through the Internet by myself.                                                                 | 3.90        | 4      | 0.93 | 2       | 5       |
| C6. The online purchasing process from the online insurance platform is fast.                                                         | 3.46        | 4      | 0.99 | 2       | 5       |
| <b>Price Consideration (Perceived Usefulness)</b>                                                                                     |             |        |      |         |         |
| P1. I am willing to make an extra effort to find a lower price insurance product.                                                     | 3.67        | 4      | 1.05 | 2       | 5       |
| P2. The money saved by finding lower prices is typically worth the time and effort.                                                   | 3.46        | 4      | 1.13 | 1       | 5       |
| P4. I will buy insurance products and coverages online to take advantage of the low prices.                                           | 3.25        | 3      | 0.93 | 1       | 5       |
| P5. Compared to traditional insurance companies, online purchase of insurance charge me less for similar products/coverages.          | 3.29        | 3      | 0.99 | 1       | 5       |
| <b>Privacy, Payment and Service Concerns (Trust/ Acceptance of Perceived Risks)</b>                                                   |             |        |      |         |         |
| T1. I trust online life insurance platforms.                                                                                          | 3.52        | 2      | 0.99 | 1       | 5       |
| T2. I feel comfortable providing my credit card information to online life insurance platforms.                                       | 3.60        | 2      | 1.09 | 1       | 5       |
| T3. I think many online life insurance platforms have security controls in place to protect my privacy.                               | 3.31        | 2      | 1.01 | 1       | 5       |
| T4. I am confident that I will be able to obtain the life insurance benefits from the online insurance platform when I file a claim.. | 2.88        | 3      | 1.28 | 1       | 5       |
| T5. I am able to evaluate or understand the life insurance coverage and limitations of online insurance products accurately.          | 2.63        | 3      | 0.91 | 2       | 5       |
| T6. I have full control over life insurance coverage(s) purchased online, and will create problems later on..                         | 2.92        | 3      | 0.87 | 1       | 5       |
| T7. The advantages of purchasing life insurance through an insurer's website will outweigh the disadvantages.                         | 3.00        | 3      | 0.94 | 1       | 5       |
| <b>Understand your Life Insurance Needs (Awareness of MPG)</b>                                                                        |             |        |      |         |         |
| M1. I think it is important to conduct a Financial Need Analysis/Risk Assessment to understand my life insurance needs.               | 3.58        | 4      | 1.13 | 1       | 5       |
| M2. I can conduct a Financial Need Analysis/Risk Assessment online myself.                                                            | 3.88        | 4      | 0.98 | 1       | 5       |
| M3. I understand how much insurance coverage I need.                                                                                  | 3.75        | 4      | 1.00 | 2       | 5       |
| M4. I want to narrow my insurance coverage gap to provide more protection to myself and my family.                                    | 3.73        | 4      | 1.11 | 1       | 5       |
| <b>Decision to Buy Life Insurance Online</b>                                                                                          |             |        |      |         |         |
| D1. How likely are you are going to buy insurance online?                                                                             | 3.69        | 4      | 0.89 | 1       | 5       |

Note\*: A 5-point scale was used, where 1 = Strongly disagree and 5 = Strongly agree.

Table 2: Descriptive Statistics on the Survey Questions Result ( n =48 )

## 5.2 Inferential Statistics

From the Scale Reliability Statistics, one construct (Attitude toward life insurance online sales process) with Cronbach's  $\alpha$  value lower than 0.5, which is considered unacceptable from an internal consistency perspective. The questions under this construct should be further reviewed before the launch of full scale survey to ensure the results are more creditable.

The linear regression test indicates that three constructs (Perceived Ease of Use, Perceived Usefulness, and Awareness of MPG) have a p value lower than 0.05, which indicates that these three constructs have statistically significant results linked with consumers' decision to buy insurance through InsurTech from an online platform. Therefore, the data support Hypothesis H2, H3 and H5 in Section 3.2

| Scale Reliability Statistics & Linear Regression                                                                                      | Cronbach's $\alpha$ | R <sup>2</sup> | P            | Stand. Estimate |
|---------------------------------------------------------------------------------------------------------------------------------------|---------------------|----------------|--------------|-----------------|
| <b>Attitude toward Life Insurance Online Sales Process</b>                                                                            | <b>0.469</b>        | <b>0.0589</b>  | <b>0.096</b> | <b>0.243</b>    |
| A2. I enjoy online interactions more than face-to-face interactions.                                                                  | 0.116               |                |              |                 |
| A3. I like to deal with many things by myself.                                                                                        | 0.399               |                |              |                 |
| A5. I have good knowledge on insurance and do not need any advice from insurance agent.                                               | 0.560               |                |              |                 |
| <b>Convenience to Buy Life Insurance Online (Perceived Ease of Use)</b>                                                               | <b>0.812</b>        | <b>0.122</b>   | <b>0.015</b> | <b>0.350</b>    |
| C1. I find it easy to locate the information that I need from online insurance platforms.                                             | 0.790               |                |              |                 |
| C3. I know how to solve most of the problems that arise during online insurance application.                                          | 0.746               |                |              |                 |
| C4. I consider myself an expert online buyer.                                                                                         | 0.809               |                |              |                 |
| C5. I am able to conduct transactions through the Internet by myself.                                                                 | 0.767               |                |              |                 |
| C6. The online purchasing process from the online insurance platform is fast.                                                         | 0.757               |                |              |                 |
| <b>Price Consideration (Perceived Usefulness)</b>                                                                                     | <b>0.706</b>        | <b>0.119</b>   | <b>0.035</b> | <b>0.338</b>    |
| P1. I am willing to make an extra effort to find a lower price insurance product.                                                     | 0.545               |                |              |                 |
| P2. The money saved by finding lower prices is typically worth the time and effort.                                                   | 0.374               |                |              |                 |
| P4. I will buy insurance products and coverages online to take advantage of the low prices.                                           | 0.543               |                |              |                 |
| P5. Compared to traditional insurance companies, online purchase of insurance charge me less for similar products/coverages.          | 0.666               |                |              |                 |
| <b>Privacy, Payment and Service Concerns (Trust/ Acceptance of Perceived Risks)</b>                                                   | <b>0.753</b>        | <b>0.0392</b>  | <b>0.177</b> | <b>0.198</b>    |
| T1. I trust online life insurance platforms.                                                                                          | 0.736               |                |              |                 |
| T2. I feel comfortable providing my credit card information to online life insurance platforms.                                       | 0.709               |                |              |                 |
| T3. I think many online life insurance platforms have security controls in place to protect my privacy.                               | 0.666               |                |              |                 |
| T4. I am confident that I will be able to obtain the life insurance benefits from the online insurance platform when I file a claim.. | 0.736               |                |              |                 |
| T5. I am able to evaluate or understand the life insurance coverage and limitations of online insurance products accurately.          | 0.704               |                |              |                 |
| T6. I have full control over life insurance coverage(s) purchased online, and will create problems later on..                         | 0.697               |                |              |                 |
| T7. The advantages of purchasing life insurance through an insurer's website will outweigh the disadvantages.                         | 0.795               |                |              |                 |
| <b>Understand your Life Insurance Needs (Awareness of MPG)</b>                                                                        | <b>0.730</b>        | <b>0.140</b>   | <b>0.009</b> | <b>0.374</b>    |
| M1. I think it is important to conduct a Financial Need Analysis/Risk Assessment to understand my life insurance need.                | 0.568               |                |              |                 |
| M2. I can conduct a Financial Need Analysis/Risk Assessment online myself.                                                            | 0.570               |                |              |                 |
| M3. I understand how much insurance coverage I need.                                                                                  | 0.574               |                |              |                 |
| M4. I want to narrow my insurance coverage gap to provide more protection to myself and my family.                                    | 0.723               |                |              |                 |

Table 3: Inferential Statistics on the Survey Questions Results ( n = 48 )

From the correlation matrix, three constructs are correlated with the decision at a significant level with p-value lower than 0.05.

### Correlation Matrix

|                                         |             | Attitude | Convenience  | Price        | Trust  | Awareness of MPG | Decision to buy insurance online |
|-----------------------------------------|-------------|----------|--------------|--------------|--------|------------------|----------------------------------|
| <b>Attitude</b>                         | Pearson's r | —        |              |              |        |                  |                                  |
|                                         | df          | —        |              |              |        |                  |                                  |
|                                         | p-value     | —        |              |              |        |                  |                                  |
| <b>Convenience</b>                      | Pearson's r | 0.527    | —            |              |        |                  |                                  |
|                                         | df          | 46       | —            |              |        |                  |                                  |
|                                         | p-value     | < .001   | —            |              |        |                  |                                  |
| <b>Price</b>                            | Pearson's r | 0.407    | 0.438        | —            |        |                  |                                  |
|                                         | df          | 46       | 46           | —            |        |                  |                                  |
|                                         | p-value     | 0.004    | 0.002        | —            |        |                  |                                  |
| <b>Trust</b>                            | Pearson's r | -0.053   | -0.206       | 0.177        | —      |                  |                                  |
|                                         | df          | 46       | 46           | 46           | —      |                  |                                  |
|                                         | p-value     | 0.722    | 0.161        | 0.23         | —      |                  |                                  |
| <b>Awareness of MPG</b>                 | Pearson's r | 0.445    | 0.403        | 0.163        | -0.46  | —                |                                  |
|                                         | df          | 46       | 46           | 46           | 46     | —                |                                  |
|                                         | p-value     | 0.002    | 0.004        | 0.026        | 0.001  | —                |                                  |
| <b>Decision to buy insurance online</b> | Pearson's r | 0.243    | 0.35         | 0.338        | -0.198 | 0.374            | —                                |
|                                         | df          | 46       | 46           | 46           | 46     | 46               | —                                |
|                                         | p-value     | 0.096    | <b>0.015</b> | <b>0.035</b> | 0.177  | <b>0.009</b>     | —                                |

Table 4: Correlation Relationship between the Five Constructs from the Survey Questions

Looking at the linear relationship between demographic factors and the decision to purchase insurance online in Table 5, it seems that the decision to purchase insurance online has no direct relationship with gender, age group, income or education level as the p-value is over 0.05.

## Linear Regression

| Model Fit Measures |       |                |  |  |
|--------------------|-------|----------------|--|--|
| Model              | R     | R <sup>2</sup> |  |  |
| 1                  | 0.316 | 0.1            |  |  |

| Model Coefficients - Decision      |          |       |        |       |
|------------------------------------|----------|-------|--------|-------|
| Predictor                          | Estimate | SE    | t      | p     |
| Intercept                          | 4.048    | 1.285 | 3.152  | 0.003 |
| (1) Gender                         | 0.124    | 0.271 | 0.456  | 0.651 |
| (2) Age Group                      | 0.173    | 0.183 | 0.948  | 0.349 |
| (3) Personal Monthly Income (HK\$) | -0.213   | 0.135 | -1.583 | 0.121 |
| (4) Education Background           | 0.135    | 0.248 | 0.545  | 0.588 |
| (5) Online shopping experience     | -0.691   | 0.67  | -1.032 | 0.308 |

Table 5: Linear Regression Result on Demographic Factors

In addition, the Independent Sample T-tests were conducted on gender and previous online shopping experience, there was no statistical significant difference between male and female respondents in making their decision to buy insurance from online platforms. It is also interesting that respondents with previous online shopping experience, did not show any statistical significance in their on-line insurance buying decision.

| Independent Samples T-Test                                                                                       |             |           |    |       |
|------------------------------------------------------------------------------------------------------------------|-------------|-----------|----|-------|
|                                                                                                                  |             | Statistic | df | p     |
| Decision                                                                                                         | Student's t | 0.402     | 46 | 0.69  |
| <i>Note.</i> $H_a: \mu_{\text{Female}} \neq \mu_{\text{Male}}$                                                   |             |           |    |       |
| Decision                                                                                                         | Student's t | 1.31      | 46 | 0.197 |
| <i>Note.</i> $H_a: \mu_{\text{No online shopping experience}} \neq \mu_{\text{With online shopping experience}}$ |             |           |    |       |

Table 6: Independent T-test on Gender and Previous On-line Shopping Experience

## 6. Conclusion

The average score for answer in the survey is 3.28, which indicate an almost neutral position from the respondents. There are a few questions score mark below 3 points (e.g. T5 - I am able to evaluate or understand the life insurance coverage and limitations of online insurance products accurately; T4 - I am confident that I will be able to obtain the life insurance benefits from the online insurance platform when I file a claim.; and C1 - I find it easy to locate the information that I need from online insurance platforms.), those are the common pain points for e-commerce / on-line insurance sales process.

As we can see from the demographic information, the respondents are well education with high income level, but they still have hesitation to purchase insurance from the on-line platform. Perhaps the types of different insurance coverage, term and conditions, various restrictions on health condition, complicated insurance contracts, different operation models / business strategies of Virtual Insurers, etc. may be part of the reasons. Further research on this area would provide more insight into these areas.

### 6.1 Limitations

Due to limited time and resources, the small sample size and limited generalizability are potential limitations of this quantitative research design. Although the questionnaire was designed based on previous research work conducted by other scholars, a deeper review on the questions which takes into account of Hong Kong specific situation would be able to improve the overall result and insight from the project.

Additionally, because this project specifically examines the insurance market in Hong Kong, the findings may not be easily applicable to other jurisdictions. Nonetheless, the insights gained from this case study could offer valuable information for conducting future research in regions that share similar characteristics.

As mention in Section 4.12, the utilization of a non-random sampling technique (i.e. convenient sampling) in this project also limit the representativeness of the results, making it difficult to generalize the findings to the broader population in Hong Kong. Furthermore, the use of Google Forms for submitting the questionnaire introduces a potential bias against individuals with high digital literacy. Having said that, the aim of this quantitative research project is to get better insights to the research topic, all these limitations should be considered and addressed in the final research project. Potential enhancements may include:

- Larger sample size;
- Consider other random sampling methods or reach out to different segments/ networks / communities to obtain more diverse samples;
- Conduct personal interviews with subject matter experts to design the questionnaire;
- The questions covered in the survey to be reviewed by a larger focus group;
- If convenience sampling is being used, the researcher can specify the inclusion criteria to encompass more diverse characteristics from the participants; monitor the participants' demographics during the recruitment process to identify any potential gaps or underrepresentation;
- Collaborate with community leaders, interest groups, or online forums to reach individuals who may not typically be involved in research studies;
- Further revise the questionnaire with clear and inclusive language that accommodates different literacy levels. Also can consider to include graphic representations and interactive messages which may appeal to a diverse audience ; and
- Be cautious in generalizing the findings to the broader population and acknowledge the limitations of sampling method in terms of representativeness.

## **6.2 Importance of Narrowing the Huge Protection Gap**

The primary objective of "life insurance" is to safeguard individuals against unforeseen circumstances by offering financial assistance to their dependents in the event of the unexpected death of the key income earner. A significant MPG reported by Swiss Re and the Insurance Authority for Hong Kong indicates that a high number of dependents may be vulnerable to maintain their living standard in unexpected

events such as illness, accidents, or the death of the breadwinner. This situation could potentially impose substantial social costs on the overall economy, in Hong Kong or elsewhere.

The high MPG is a matter of concern on a global scale. However, inadequate emphasis has been placed on addressing this issue, particularly in developing economies (Klein, 2020). However, this represents a significant new business opportunity for the insurance industry - to offer suitable products to bridge / narrow the MPG. If we can find a low-cost solution to narrow the MPG for citizens of Hong Kong and other jurisdictions, it will improve the overall financial stability in the community, and also lower the government spending on social welfare.

### **6.3 Use InsurTech form Virtual Insurers to Address the Protection Gap**

In recent years, Hong Kong has witnessed significant technological progress, and this progress may have implications for the availability of appropriate life insurance coverage that meets the evolving needs of its population (Chiu et al., 2017).

The Hong Kong insurance regulator, Insurance Authority, actively promotes initiatives to foster InsurTech as a key component of its goal to bolster Hong Kong's position as an international financial hub (Insurance Authority, 2023a). The regulator has been assisting market participants in addressing any regulatory issues related to development of InsurTech in Hong Kong (Insurance Authority, 2023b), including the setup of Virtual Insurers that exclusively utilize digital distribution channels. This is aligned with the regulatory objective of fostering InsurTech development in Hong Kong and promoting greater inclusion in long-term insurance (Insurance Authority, 2023).

The outcomes of this research project can provide some insight to multiple stakeholders, including government agencies, Virtual Insurers, policyholders and general public. The findings can contribute into business strategies adopted by industry leaders to incorporate InsurTech into their operations to enhance efficiency. Hong Kong citizen can also enjoy a better and quicker risk assessment result generated

from InsurTech, enabling them to obtain suitable coverage tailored to their specific needs at competitive prices. Policymakers can refine the regulatory requirements to facilitate the adoption of InsurTech while safeguarding consumer rights.

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## Appendix A – Survey Questionnaire

### **Questionnaire on Personal Preferences for Purchasing Life Insurance Policy through an Online Platform**

#### **Purpose of the Study**

This study aims to examine the factors that impact individuals' decisions to purchase life insurance policies through an online platform.

#### **Confidentiality and Data Retention**

The data gathered from this questionnaire will be handled with utmost confidentiality and anonymity. Any personal data collected will be deleted after a period of six months from the completion of the assignment. The research findings will be presented in an anonymous format.

#### **Informed Consent**

You are invited to participate in a study conducted by Albert CHIU for his assignment under the Doctor of Business Administration Program. If you agree to be part of the research study, kindly complete this online survey.

#### **Profile of the Survey Participant**

- (1) **Gender:** ☐ Male ☐ Female
- (2) **Age Group:** ☐ below 20 ☐ 21-30 ☐ 31-40 ☐ 41-50  
☐ 51 or above
- (3) **Personal Monthly Income (HK\$):** ☐ below \$20,000 ☐ \$20,001 - \$40,000  
☐ \$40,001 - \$70,000 ☐ \$70,001 - \$100,000  
☐ \$100,001 or above
- (4) **Education Level::** ☐ Primary School or below ☐ DSE ☐ Diploma  
☐ University Degree ☐ Master Degree or above
- (5) **Do you have any experience on shopping online (e.g. Amazon, Taobao, etc.) :**  
☐ Yes ☐ No
- (6) **Are you a Hong Kong Citizen and live in Hong Kong:** ☐ Yes ☐ No

## Survey Questions

There are total 28 survey questions relate to your personal preferences/ expectation about purchasing life insurance policy through an online platform.

Please indicate your response by using a 5-point scale:

- 1 : Strongly disagree
- 2 : Disagree
- 3 : Neither agree or disagree
- 4 : Agree
- 5 : Strongly agree

|     | Item ID | Attitude toward Life Insurance Online Sales Process                                                                            |
|-----|---------|--------------------------------------------------------------------------------------------------------------------------------|
| 1*  | A1      | I am mostly outgoing and enjoy direct conversation with an insurance agent.                                                    |
| 2   | A2      | I enjoy online interactions more than face-to-face interactions.                                                               |
| 3   | A3      | I like to deal with many things by myself.                                                                                     |
| 4*  | A4      | I am talkative and often seek external interactions.                                                                           |
| 5   | A5      | I have good knowledge on life insurance and do not need any advice from insurance agent.                                       |
|     |         | <b>Convenience (Ease of Use) to Buy Life Insurance Online</b>                                                                  |
| 6   | C1      | I find it easy to locate life insurance information that I need from online insurance platforms.                               |
| 7*  | C2      | The life insurance information shown in the online insurance platforms is unclear and difficult to understand for me.          |
| 8   | C3      | I know how to solve most of the problems that arise during online life insurance application.                                  |
| 9   | C4      | I consider myself an expert online buyer.                                                                                      |
| 10  | C5      | I am able to conduct transactions through the Internet by myself.                                                              |
| 11  | C6      | The online purchasing process of life insurance from the online insurance platform is fast.                                    |
|     |         | <b>Price Consideration</b>                                                                                                     |
| 12  | P1      | I am willing to make an extra effort to find a lower price life insurance product.                                             |
| 13  | P2      | The money saved by finding lower prices is typically worth the time and effort.                                                |
| 14* | P3      | I prefer dealing directly with an insurance agent as he/she provides price information in detail.                              |
| 15  | P4      | I will buy life insurance products and coverages online to take advantage of the low prices.                                   |
| 16  | P5      | Compared to traditional insurance companies, online purchase of life insurance charges me less for similar products/coverages. |

|    |    |                                                                                                                                   |
|----|----|-----------------------------------------------------------------------------------------------------------------------------------|
|    |    | <b>Privacy, Payment and Service Concerns</b>                                                                                      |
| 17 | T1 | I trust online life insurance platforms.                                                                                          |
| 18 | T2 | I feel comfortable providing my credit card information to online life insurance platforms.                                       |
| 19 | T3 | I think many online life insurance platforms have security controls in place to protect my privacy.                               |
| 20 | T4 | I am confident that I will be able to obtain the life insurance benefits from the online insurance platform when I file a claim.. |
| 21 | T5 | I am able to evaluate or understand the life insurance coverage and limitations of online insurance products accurately.          |
| 22 | T6 | I have full control over life insurance coverage(s) purchased online, and will create problems later on..                         |
| 23 | T7 | The advantages of purchasing life insurance through an insurer's website will outweigh the disadvantages.                         |
|    |    | <b>Understand your Life Insurance Needs</b>                                                                                       |
| 24 | M1 | I think it is important to conduct a Financial Need Analysis/Risk Assessment to understand my life insurance needs.               |
| 25 | M2 | I can conduct a Financial Need Analysis/Risk Assessment online myself.                                                            |
| 26 | M3 | I understand how much life insurance coverage I need.                                                                             |
| 27 | M4 | I want to narrow my life insurance coverage gap to provide more protection to myself and my family.                               |
|    |    | <b>Your Decision to Buy Life Insurance Online</b>                                                                                 |
| 28 | D1 | How likely are you are going to buy insurance online?                                                                             |

Note: \* represents reversed items.