Increasing the Quantity of the Actuaries in Indonesia with E-learning

Yulial Hikmah

Administration and Business Department, Vocational Education Program, Universitas Indonesia

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Abstract: An actuary is an expert who can apply mathematical theory, probability and statistics, as well as economics and finance to solve the actual problems in a business, especially those related to risk. The need for an actuary profession in Indonesia is increasing along with the dynamics that occur both in economic, social and regulatory aspects in Indonesia. However, the number of actuaries in Indonesia is still minimal. In Indonesia, a person is said to be an actuary if he passed the exam of the Indonesian Actuary Association. The passing rate of the exam is quite low. This profession is mostly only known by the people in the big cities. This study aims to analyze the e-learning method as a way to increase the number of actuaries in Indonesia. This research is a qualitative study. Data are collected by the electronic sources and interviews with the actuaries. The analytical method used is the SWOT Analysis. This study finds that e-learning can increase the percentage of passing Actuary Professional Exams. Thus, e-learning can increase the number of actuaries in the various regions in Indonesia.

1 INTRODUCTION

Based on The Society of Actuaries of Indonesia (PAI), the actuary is an expert who can apply mathematical theory, probability and statistics, economics and finance to solve actual problems in a business, especially related to risk. Someone is said to be an actuary if he follows a series of Actuarial professional examinations held by The Society of Actuaries of Indonesia (PAI). The Indonesian government itself requires that every insurance company has at least one actuary. Moore, M.G. (1973).

This was confirmed by the Decree of the Ministry of Finance of the Republic of Indonesia No. 426 / KMK.06 / 2003 in article 3 paragraph 16 which states that each life insurance company must have at least one certified actuary. This is in line with the program of Financial Services Authority (OJK) which targets 1000 actuaries in 2018. Based on Deputy Director of Statistics and Information of IKNB, Arie Munandar, The number of actuaries in Indonesia in 2018 was 571. This is still far from the OJK Program. According to Rosenberg (2001) that e-learning refers to the use of internet technology to deliver a series of solutions that can increase knowledge and skills. Therefore, actuarial science e-learning can be a

solution in fulfillment of the number of actuaries in Indonesia because actuary candidates can study independently wherever and whenever with modules, questions and discussions offered by e-learning so e-learning can increase the opportunity to pass the exam. Moore, M.G. & Thompson, M.M. (1990).

2 LITERATURE REVIEW

2.1 The Actuaries

Actuary is an expert who can apply the theory of mathematics, Probabilita and statistics, as well as economics and financial sciences to solve the actual problems of a business especially related to risk. (Nielsen, et. Al 2007).

These business problems are linked to events that occur in the future, the likelihood of such events occur, when the event will occur and how much funds need to be set aside to address the costs that arise if the event The event. An actuary generally works in the financial industry, such as life insurance companies, general insurance companies, health insurance companies, pension funds, actuarial consultants and investmentsVerduin, J.R. & Clark, T.A.

(1991). . Many also actuaries that have penetrated in other areas related to risk management that require strong analytical and logic skills.

The professional test of actuary consists of 11 (eleven) exam subjects as follows: Have taken and passed the exam points for the level of actuarial Ajun 7 (seven) exam points and 1 (one) Professional seminar, i.e. F-10: Investment and asset Management , F-20: Actuarial Management , F-31: Actuarial aspect in life insurance; Or, F-32: Actuarial aspect in pension fund; Or , F-33: Actuarial aspect in general insurance; Or F-34: Actuarial aspect in health insurance.The professional test of Ajun Aktuaris consists of 8 (eight) exam subjects as follows: A-10: Financial Mathematics, A-20: Probabilita and statistics , A-30: Economy , A-40: Accounting , A-50: Statistical method , A-60: Actuarial Mathematics, A-70: Modeling and risk theory , A-80: Professionalism

2.2 SWOT Analysis

SWOT analysis is a method used to analyze and position environmental and environmental resources within the region, in the form of strengths, weaknesses, opportunities and threats.Strengths and Weaknesses are internal (controlled) factors that support and hamper organizations to achieve their respective missions. Garrison, D. R. 1993 , Porter, L.R. (1997). While Opportunities and Threats are external (uncontrollable) factors that enable and sacrifice employees from their mission. By identifying the factors in these four areas, organizations can be involved in decision-making, planning and strategy development.

2.3 Importance Performance Analysis

The following Importance Performance Analysis Matrix:
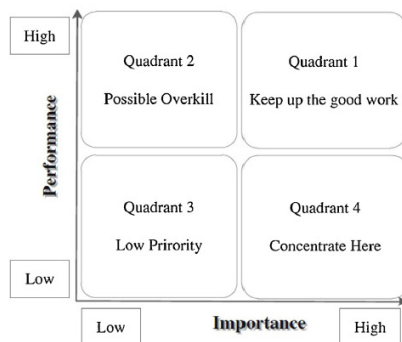

Figure 1. The Importance-Performance Analysis (IPA) matrix (Hosseini & Bideh, 2013).

Based on the picture above are:

a. Quadrant 1 labeled attribute is very important for customers, and the company provides a high level of performance. Thus the attributes in this quadrant are referred to as the main strengths and opportunities to achieve or sustain the competitive advantage of the firm.

b. Quadrant 2 labeled attributes are not important to the customer, but the company provides a high level. In this case, companies should look for incoming resources for attributes in the inner quadrant.

c. Quadrant 3 contains attributes with low purpose and serves as a minor minor. So in this quadrant there are not many priorities for improvement.

d. Quadrant 4 attribute is very important for the customer but the performance level is quite low. These attributes are called major weaknesses that require immediate attention to improvement.

3 METHODOLOGY

3.1 Type of Research

This type of research is qualitative and descriptive research. Descriptive method is the fact finding with the right interpretation. Taylor, J. C. 2000, Knowles, M.S. (1975) .Descriptive research studies the problems of society, as well as procedures applicable in certain communities and situations, including on relationships, activities, attitudes, views, and ongoing processes as well as the effects of a phenomenon

3.2 Operational Definition

The operational definitions of this research are:

1. Potential is internal condition owned by company, that is excess or strength (strength) owned by insurance company in Indonesia.

2. Constraints are internal conditions that exist within the company, namely weaknesses that can hamper insurance companies in Indonesia in running insurance business.

3. Opportunities are the external conditions of the company, namely the opportunities that insurance companies can take in Indonesia to assist in achieving business objectives.

4. Threat is the external condition of the company, that is the existence of things from outside the company that can hinder the insurance company in Indonesia in running its business.

5. Strategy is the various forms of ways or policies undertaken by the insurance company to achieve business objectives by using existing potential and minimize the constraints.

3.3 Data Types and Data Sources

The types and sources of data used in this study are:

1. Primary Data. Primary data is data obtained from first source either individual or group become object in this research. Primary data is obtained through direct interview with several actuaries.

2. Secondary Data. This data is data that has been available and obtained from various literature and references such as journals, articles, to internet sites. Secondary data was obtained from literature studies, such as journal articles, mass media, the official web of institutions, etc. The data obtained contains information relating to the issues discussed in this study.

3.4 Data Collection Methods

Data collection methods used in this study are:

1. Interviews, data collection techniques conducted by asking questions to respondents or resource persons, namely Actuaries in insurance companies. Questions raised are related issues in research, namely on the potential and constraints in the development of insurance in Indonesia.

2. Documentation, conducted by collecting data on Insurance. The data collected is insurance development data in some developing countries. In addition, also search, review and review information or data sourced from books, journals and the internet on insurance to find the rationale and problem solving.

3.5 Technical Analysis

Data analysis technique used in this research is qualitative descriptive analysis technique. Qualitative descriptive technique is the processing of qualitative data that has been obtained through a simple representation of facts / characteristics. This study used SWOT analysis. Schank, R.C. (2002). Sharma, S. (2002) Based SWOT analysis is the systematic identification of various factors to formulate a strategy (Silong, et al.,2001). The strategic decision-making process is always related to development, mission, goals, strategy and policy. Then from the SWOT analysis results, can be seen how the potential and constraints of Cyber insurance development in Indonesia. These potentials include strengths and opportunities, while constraints include weaknesses and threats. Data analysis tools used are Internal Factor Evaluation Matrix, External Factor Evaluation Matrix, SWOT diagram, and SWOT Matrix.The form should be completed and signed by one author on behalf of all the other authors.

4 RESULTS AND DISCUSSION

The company takes advantage of internal conditions and external conditions in the development of the company. A company cannot be separated from understanding in the internal and external environment of the company. Robinson, B. (2001). on the results of interviews conducted with several actuaries and leaders of the company to review the importance of the actuarial function of insurance companies along with the study of literature, identifying authors included in internal factors and external factors. The following table identifies the results of internal factors and external factors:

Table 1.

Internal Environmental Analysis	External Environmental Analysis
1. E-learning Media: Web-based and Android / iOS 2. The cost of implementing E-learning was still expensive 3. Promotion of E-learning: socialization to universities or companies / electronic media 4. E-learning Facilities: Online modules, questions and discussion, exam simulation 5. Competent human resources needs: 6. Adequate human resources involved: Teachers (competencies), IT supports, Administrators, etc. 7. Market Segments; Students Backgrounds (educations and regions)	1. Technological Development: Students in various regions (the Internet has been reached everywhere), but the disruptions of internet connection can inhibit the learning process 2. Government Policy: The obligation of insurance companies and financial sector to have at least one actuary 3. Competition: Appear the similar learning methods 4. Students' interest was high because a high of actuaries' salary

From external and internal factors above, then obtained the SWOT matrix analysis as follows:

Table 2.

Internal Factors	External Factors
Strength	**Opportunity**
1. The media used were almost owned by everyone (easily accessible and not a luxury thing) 2. The cost of e-learning was affordable by students 3. Students Background from various fields of competence 4. Students became independent, active, and have initiative individuals 5. Students can learn anywhere and anytime 6. Teachers and students can use modules that were structured and scheduled	1. The needs of actuary numbers was increasing 2. There was a program of 1000 actuaries by Financial Services Authority (OJK) 3. There was no Actuarial science E-learning in Indonesia 4. Students' interest to be an actuary was increasing because it's salary 5. Students can come from various regions 6. Students spend the low costs to be an actuary
Weakness	Threat
1. Requires a high cost for organizers to make the good facilities. 2. Lack of human resources who have the internet skills 3. The learning and teaching process more inclined to training than education	1. Internet connection that has a problem can hamper the learning process

5 CONCLUSIONS

Based on the results of SWOT analysis conducted, it can be obtained that: Based on the government policy that existence a program of 1000 actuaries and increasing of students interest to be an actuary, e-learning can be a good method to increase the numbers of actuary in Indonesia.; E-learning method can make the students study independently wherever and whenever. Students also can do exam simulation in order to increase competencies opportunity of passing the exam.; Actuary candidates (students) come from various region because the accessibility pf internet, various competencies backgrounds because e learning don't require the linearity of competency (actuarial science, statistics, and mathematics), and the backgrounds of economics capability because the cost of e-learning is achieved by students.;Required

the competent and technology adaptability human resource in order to the e-learning process can works.

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