Journal of Engineering and Applied Sciences 15 (6): 1402-1406, 2020
ISSN: 1816-949X


# Applying a Risk Management Framework to the Thai Massage Businesses

Jirapat Wanitwattanakosol
College of Arts, Media and Technology, Chiang Mai University,
50200 Chiang Mai, Thailand

**Abstract:** This research developed a risk management framework based on ISO 31000:2009 for the Thai massage industry. The Thai massage standard is regulated by Thai Ministry of Public Health. Nevertheless, this standard should include a risk management for reassessing the current ones. The risk perspective was characterized by customer, massage staff, service, competitor and place. Next, risks were identified by interviewing the spa operators and in some cases, the spa service operator also. The required number of sample interviewees were calculated using Yamane's formula in a finite population. A draft version of the framework included 23 Key Risk Indicators (KRIs). After a consistency check by two specialists, two KRIs were eliminated, leaving 21 KRIs in the study framework. The risk level of each indicator was determined by multiplying the likelihood, impact and detection scores; each of these three dimensions were rated on a five-point scale. Of the 21 KRIs, four were extremely high risks, three were high, six moderate and eight low. At the step of risk treatment, one indicator shall be accounted in terminate type, seventeen indicators were carried in treat type. Treatment was selected potential action for others. During all steps were done along with appropriate active communication and oversight.

**Key words:** Failure mode effects analysis, framework ISO 31000:2009, risk management, Thai massage, terminate type, communication

## INTRODUCTION

The service sector is an essential driver of the Thai economy, accounting for about 50% of the national gross domestic product and employing more than 40% of the workforce (Koonnathamdee, 2013). The health service industry, comprised of health spa, massage for health and massage spa beauty is an important sub-sector. The Ministry of Public Health launched standards dictated by legislative provisions with five dimensions: the establishment/facility, the spa operator, the spa service provider, the provision of spa services and security. In 2015, 509 health spa, 1070 massage for health and 30 massage spa beauty establishments were certified as shown in Table 1 (Pradittasuwan, 2017).

The Ministry of Public Health should take a more holistic approach to certification than the legislative guidelines alone. Thaemngoen (2014) proposed a pattern of service marketing strategies for a health service business in Nakhon Ratchasima province, Thailand using participatory action research to survey health spa, massage for health and massage spa beauty entrepreneurs.

Managing risk is a vital issue in health service businesses. Risk management helps all other management activities achieve organizational targets, directly and efficiently in response to continuous changes in both the internal and external environment (Tchankova, 2002). Employing risk management guidelines can help the service industry improve service and customer satisfaction (Koywanit, 2007).

Table 1: Operators certified by The Ministry of Public Health in 2015

| Segments | Establishment | Percent |
|---|---|---|
| Health spa | 509 | 31.63 |
| Massage for health | 1,070 | 66.50 |
| Massage spa beauty | 30 | 1.87 |
| Total | 1,609 | 100.00 |

Pradittasuwan, 2017

A development of the risk management guideline for service industry could be adopted ISO 31000:2009 (ISO., 2009), Risk management-Principles and guidelines for managing risk. It proposes principles and generic guidelines all operations concerned with risk management.

The FMEA is a methodology for detecting the consequences of risks that is inexpensive and does not require specific software (Ennouri, 2015). The FMEA is a repeatable, structured and methodical technique for identifying what might go wrong before it occurs, thus, increasing customer satisfaction (Anleitner, 2010). Each identified risk needs to be calculated and ranked to select appropriate corrective actions. The potential failures with a higher Risk Priority Number (RPN) are assumed more important than others. The priority of a failure mode is determined through its Risk Priority

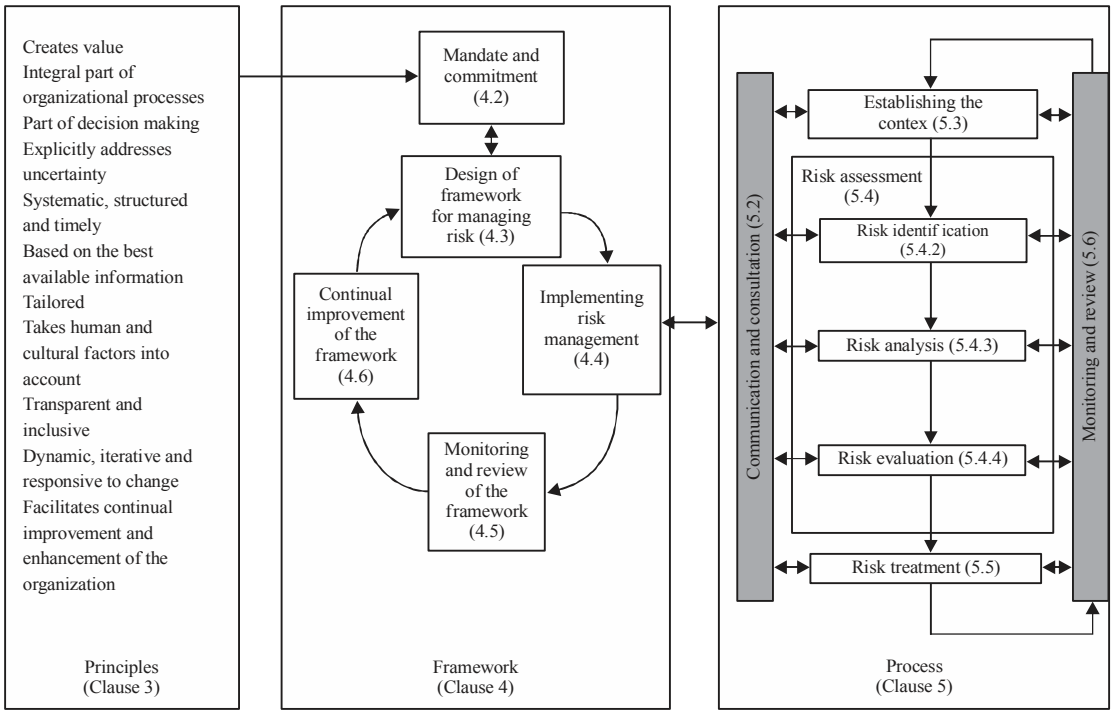


Fig. 1: ISO 31000:2009 guidelines, IOS. (2009)

Number (RPN) which is defined as the product of the Likelihood, (L), Impact (I) and Detection (D) of the failure using Eq. 1:

$$RPN = L \times I \times D \quad (1)$$

The three factors L, I and D are all evaluated using preferred rating scales to form the risk value. However, Chin *et al.* (2009) argued that FMEA should be used with caution because of the diversity and uncertainty of assessment information. This research establishes a framework for integrating comprehensive risk management tools (based on the international standard ISO 31000: ISO., 2009) into the Thai massage service industry.

**Background of ISO 31000:2009:** In a series of six meetings over several years, the technical advisory group of the International Organization for Standardization revised the Australia/New Zealand risk management standard (Australia and New Zealand Standard (AS/NZS) 4360:2004) to create ISO 31000:2009; this standard can be adopted for use in a wide variety of organizations, regardless of operation, size or type (Gjerdrum and Peter, 2015). The ISO 31000:2009 framework provides the principles and guidelines for effectively, efficiently and coherently managing risk across an organization in a systematic, transparent and credible manner and within any scope or context (ISO., 2009). However, this international standard is not intended for achieving certification. Figure 1 illustrates the relationship between the principles for managing risk, the framework and the risk management process designated in this international standard.

The ISO 31000:2009 process has five steps, each of which includes active communication (communication and consultation) and oversight (monitor and review). The five steps are in (Anonymous, 2017).

**Establish the context:** Identify the objectives of the project, event or relationship and then consider the internal and external parameters.

**Identify the risk:** Identify the sources of the risk, areas of impact and events and their causes and potential consequences.

**Analyze the risk:** Develop a detailed understanding of the risk.

**Evaluate the risk:** Through, understanding the risk, determine whether it is acceptable or not and make decisions about future actions.

**Treat the risk:** Minimize the frequency and severity of the risk through effective actions.

According to Lai and Chin (2004), the process part of ISO 31000:2009 is the same as AS/NZS 4360:1999, AIRMIC, ALARM, IRM:2002 and ISO 27005:2011. The FMEA is a methodology aimed as a risk assessment tool because of its semi-quantitative approach in calculating RPN. Dias *et al*. (2011) also used FMEA, given its compliance with ISO 31000:2009, to assess risks related to $CO_2$ in saline aquifers as part of the multiple space and time scale approach for the quantification of deep saline formations for $CO_2$ storage or MUSTANG EU project. At risk treatment ISO 31000:2009 gives a set of general options to deal with risks such as: avoiding the risk by deciding not to start or continue with an activity, taking the risk in order to pursue an opportunity and removing the source of the risk (Purdy, 2010).

## MATERIALS AND METHODS

The population for this study was all certified Thai massage entrepreneurs in Muang district, Chiang Mai province, Thailand. The level of precision is one of the main criteria used to determine the appropriate sample size. The sampling error is the range expressed as a percentage (Israel, 1992). This study used the simplified formula of Yamane (1967) to calculate the sample size as shown in Eq. 2:

$$n = \frac{N}{1+N(e)^2} \quad (2)$$

Where:
n : The sample size
N : The population size
e : The level of precision

This study has proposed a framework that applies comprehensive risk management tools based on the International Standard ISO 31000:2009 as shown in Fig. 2. Three major elements are active communication (be sure all parties understand each other's perspectives and are actively involved in decision-making), process execution and oversight (monitor changes to the source and context of risks, the tolerance for certain risks and the adequacy of controls). The first step of process execution is to establish the context by identifying the scope, relevant stakeholders, areas and environments. Next, FMEA was applied to identify, analyze and evaluate the risks.

The risks were identified based on interviewing the spa operators and/or the spa service providers. To ensure all respondents had the same understanding of the concepts surveyed, sample participants were selected based on their own understanding of the questions as well as their familiarity with the model surveyed. Key Risk Indicators (KRIs) were grouped into five categories:

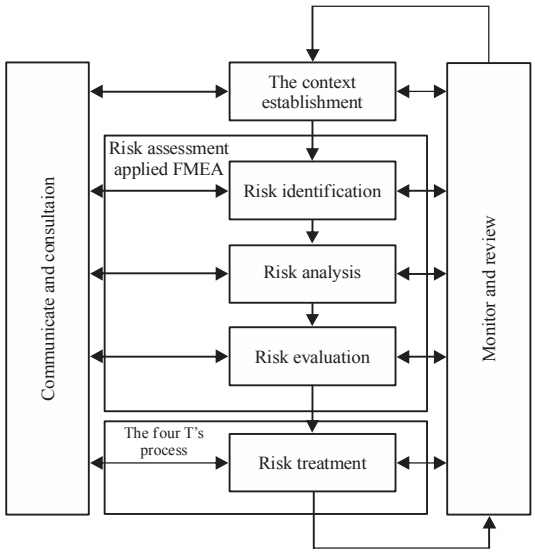


Fig. 2: Proposed approach adapted from ISO 31000:2009

Table 2: Ratings for the likelihood of a failure

| Rating | Probability of occurrence | Explanation |
|---|---|---|
| 5 | Very high | Very likely to occur |
| 4 | High | Likely to occur |
| 3 | Moderate | Possible to occur |
| 2 | Low | Unlikely to occur |
| 1 | Remote | Very unlikely to occur |

Table 3: Ratings for the impact of a failure

| Rating | Effect | Severity of effect |
|---|---|---|
| 5 | Hazardous | Customer has severe injuries |
| 4 | Very high | Customer has injuries and infections |
| 3 | Moderate | Customer has minor injuries or aches |
| 2 | Very low | Customer experiences discomfort |
| 1 | Very minor | No injury |

Table 4: Ratings for detection of a failure

| Rating | Detection | Criteria |
|---|---|---|
| 5 | Impossible | There is no design control |
| 4 | Very low | Very low chance the design control will detect a potential cause |
| 3 | Low | Low chance the design control will detect a potential cause |
| 2 | Moderately high | Moderately high chance the design control will detect a potential cause |
| 1 | Very high | Very high chance the design control will detect a potential cause |

customer, massage staff, service, competitor and place. Two specialists (an occupational health and safety expert and a Chiang Mai public health physician) checked the content consistency of the draft questionnaire. A finalized version of the questionnaire was checked for content validity by using Item Objective Congruence (IOC). A three-point scale (-1, 0, +1) was used to rate the KRIs. Indicators with an average score greater than or equal to 0.5 were considered appropriate. The risk value of each

indicator was determined by multiplying the likelihood, impact and detection scores as in Eq. 1. The three dimensions were rated on a five-point scale from 1-5 as described in Table 2-4 (adapted from (Chin *et al*., 2009). Based on their RPN scores, risks were grouped into four levels: Extreme risk (E), High risk (H), Moderate risk (M) and Low risk (L) as shown in Table 5. Lastly, this study employed Hopkin (2014) four Ts (risk tolerance, risk treatment, risk transfer, risk termination) to determine risk treatment as presented in Table 6. All steps were carried out using appropriate active communication and oversight.

Table 5: Risk level by multiplying scores

| Level | RPN range | Description |
|---|---|---|
| Extreme | 80-125 | Determine an urgent plan |
| High | 60-79 | Assign a spa operator to closely follow-up |
| Moderate | 40-59 | Assign a spa operator or service provider to follow up |
| Low | 0-39 | Set a control procedure |

Table 6: Risk respond determination

| Type | Description |
|---|---|
| Risk tolerance | No action is taken to mitigate or reduce a risk |
| Risk treatment | A method of controlling risk through actions |
| Risk transfer | Third parties are prepared to take the risk on behalf of the organization |
| Risk termination | An indicator can be changed or removed without affecting the business |

## RESULTS AND DISCUSSION

This research proposed the risk management approach needed to fulfill the legislative guidelines by The Ministry of Public Health. The risk perspective was characterized by customer, massage staff, service, competitor and place. There were 115 certified entrepreneurs in Muang district, Chaing Mai province, Thailand. The required sample size using Yamane's formula at the 95% confidence level was 90 establishments as shown in Eq. 2:

$$n = \frac{N}{1+N(e)^2} = \frac{115}{1+115(0.05)^2} = 89.84$$

Two KRIs of the service category made up of prostitution or unethical treatment and do a runner were removed from the questionnaire (Table 7 and 8). Based on the suggestions of the experts, the categories of some KRIs were changed. The final version of the questionnaire consisted of 21 KRIs. The RPN of each KRI was calculated using Eq. 1. The KRIs were evaluated and ranked as shown in Table 7. Of the 21 KRIs, four were extremely high risks, three were high, six moderate and eight low. Based on Four Ts, one indicator, seventeen indicators and three indicators were carried in termination approach, treat approach and tolerance approach, respectively. Only extreme risk level indicators were exhibited in Table 8.

Table 7: Summary of KRIs

| Risk indicator | Group | L | I | D | RPN | Risk level |
|---|---|---|---|---|---|---|
| Inappropriate style of the massage facility | Place | 4 | 5 | 4 | 80 | E |
| Massage staff are not adequately trained | Staff | 5 | 4 | 5 | 100 | E |
| Not enough massage therapists to meet demand | Service | 5 | 4 | 4 | 80 | E |
| No receptionist | Service | 4 | 4 | 5 | 80 | E |
| Lack of regular massage staff | Service | 4 | 4 | 5 | 80 | H |
| The massage does not meet Thai standards | Service | 5 | 3 | 5 | 75 | H |
| No queue management system | Service | 4 | 4 | 4 | 64 | H |
| Long wait times | Service | 4 | 4 | 3 | 48 | M |
| Customer injury from massage | Service | 3 | 4 | 4 | 48 | M |
| No loyalty customer | Customer | 3 | 4 | 4 | 48 | M |
| Undercut by competitors | Competitor | 4 | 4 | 3 | 48 | M |
| No query of history taking | Service | 4 | 3 | 4 | 48 | M |
| Inappropriate location or no parking | Place | 4 | 3 | 4 | 48 | M |
| Threat of new entry | Competitor | 3 | 4 | 3 | 36 | L |
| Massage staff with limited Foreign language skills | Staff | 4 | 3 | 3 | 36 | L |
| Fungus in the compress | Service | 2 | 4 | 4 | 32 | L |
| Insufficient number of beds | Service | 2 | 3 | 5 | 30 | L |
| Inappropriate dress | Staff | 3 | 3 | 3 | 27 | L |
| Expensive rent | Place | 2 | 2 | 4 | 16 | L |
| Bargaining power of customer | Customer | 2 | 2 | 4 | 16 | L |
| Abuse of massage staff | Customer | 3 | 1 | 3 | 9 | L |

Table 8: Risk response for extreme risk level indicators

| Risk indicator | Risk response | Description |
|---|---|---|
| The inappropriate style of the massage facility | Termination | The enterprise must renovate facility as specified bv The Ministry of Public Health standard |
| Massage staff are not adequately trained | Treatment | Send staff to train at government certified Thai massage professional school |
| Not enough massage therapists to meet demand | Treatment | Adopt a queuing management system |
| No receptionist | Treatment | The spa operator should act as receptionist or hire one |

## CONCLUSION

This research developed a framework for managing risks in the Thai massage industry. Risk data were collected from the sample group by face-to-face interviews and questionnaire. Expert helped screen two irrelevant indicators. Extreme risks were found in the massage staff, service and place categories. Specifically, the massage facility must be corrected to eliminate a risk impact. Risk transfer was not selected around the choices into the Thai massage context. This research bridged the gap of the managerial implication for Thai massage enterprises and policy makers. The current status could lead to determine needed to enable a future state standard. Future research to develop a Thai massage rating system is recommended.

## ACKNOWLEDGEMENT

The researcher appreciates Ms. Thanamas Kaewkanya and Mr. Supaatcha Thongchai for collecting the data used in this research.

## REFERENCES

Anleitner, M.A., 2010. The Power of Deduction: Failure Modes and Effects Analysis for Design. ASQ Quality Press, Milwaukee, Wisconsin, ISBN:978-0-87389-796-9, Pages: 194.

Anonymous, 2017. Legal and risk. University of Adelaide, Adelaide, Australia. https://www.adelaide.edu.au/legalandrisk/self-service

Chin, K.S., Y.M. Wang, G.K.K. Poon and J.B. Yang, 2009. Failure mode and effects analysis using a group-based evidential reasoning approach. Comput. Operat. Res., 36: 1768-1779.

Dias, S., Y.L. Guen, O. Poupard and V. Shtivelman, 2011. Risk assessment of MUSTANG project experimental site-methodological development. Energy Procedia, 4: 4109-4116.

Ennouri, W., 2015. Risk management applying FMEA-STEG case study. Pol. J. Manage. Stud., 11: 56-67.

Gjerdrum, D. and M. Peter, 2015. The new international standard on the practice of risk management-A comparison of ISO 31000: 2009 and the COSO ERM framework. Risk Manage., 31: 8-12.

Hopkin, P., 2014. Fundamentals of Risk Management: Understanding, Evaluating and Implementing Effective Risk Management. 3rd Edn., Kogan Page UK., ISBN-13: 978-0749472443. Pages: 448.

ISO., 2009. ISO 31000: Risk Management-Principles and Guidelines. 2nd Edn., International Organization for Standardization, Geneva, Switzerland,.

Israel, G.D., 1992. Determining sample size (Fact sheet PEOD-6). University of Florida, Gainesville, Florida. http://zulsidi.tripod.com/pdf/DeterminingSampleSizes.pdf

Koonnathamdee, P., 2013. A turning point for the service sector in Thailand. Asian Development Bank Economics Working Paper Series No. 353, Asian Development Bank, Manila, Philippines. https://www.adb.org/sites/default/files/publication/30300/ewp-353.pdf

Koywanit, C., 2007. [The development of risk management guidelines for service industry organizations: A case study of the Nam Nam mineral health treatment center]. MCS Thesis, Chulalongkorn University, Bangkok, Thailand. (In Thai)

Lai, L.K.H. and K.S. Chin, 2004. Development of a failure mode and effects analysis based risk assessment tool for information security. Ind. Eng. Manage. Syst., 13: 87-100.

Pradittasuwan, A., 2017. Bureau of sanatorium and art of healing. Hfocus.org, Udon Thani, Thailand.

Purdy, G., 2010. ISO 31000: 2009-setting a new standard for risk management. Risk Anal. Intl. J., 30: 881-886.

Tchankova, L., 2002. Risk identification-basic stage in risk management. Environ. Manage. Health, 13: 290-297.

Thaemngoen, J., 2014. Marketing potential development for health tourism: Case study of spa business in Nakhon Ratchasima Province. J. Humanities Soc. Sci. Maha Sarakham Univ., 33: 148-160.

Yamane, T., 1967. Statistics, an Introductory Analysis. 2nd Edn., Harper and Row, New York, USA.