CHAPTER 4

FINDINGS AND DISCUSSIONS

4.1 Introduction

This chapter presents the findings from the data analysis and discussion of the findings. Data collected and analysed throughout the thesis is presented and explained in detail in this chapter.

4.2 Risk Management Processes Developed by Previous Studies for Businesses

As presented in Table 4.1, the steps of risk management processes developed by previous studies is grouped following the common purpose of each step. The purpose outlined for each step follows the purpose of risk management steps in the ISO 31000: 2018 Risk Management Guidelines. Table 4.1 also shows that there are common steps of risk management developed by all author such as risk identification and risk treatment.

A benchmark is set to determine the most common risk management steps in the risk management steps developed by the eleven previous studies. The benchmark is only steps that appear in at least ten of the articles is considered as common steps of risk management process. After applying the benchmark, there are only four common steps of risk management process as presented in Figure 4.1. The common steps are risk identification, risk analysis, risk treatment, and risk monitoring and review. The explanation of each step is the concluded from previous articles from Chapter 2.

Step 1 – Risk identification.

The first common step is risk identification. Risk identification is a process of identifying and understanding any possible risk that may affect the objectives of business. Risk identification aims to find, recognize, and describe risks that might help or prevent a business from achieving its objectives. It is crucial to identify all internal and external risks that affects the achievement of business objectives. Leaving risks out may lead to disruption and destruction of the business.

Risk identification can be done in various ways using various tools and techniques. Combination of different methods to identify helps business owners to come out with maximum number of risks because this process normally relies on existing knowledge and experience. Some tools or methods that can be utilized are by reviewing documents, and information gatherings. Organizations can also investigate risk prospectively or retrospectively. Retrospective risks can be obtained from incident logs or customer complaints. Prospective risks are risks that have not yet occurred but could happen sometime in the future.

At this step, business owners may describe risks in detail, including the risk sources, potential risk events, the consequences, and the likelihood of the risks. In addition, business owners can describe the risks in terms of something that can be controlled and corrected to help for risk treatment stage later.

Step 2 Risk analysis.

The second common step is risk analysis. Risk analysis is the process of assessing all risks in the business. This step aims to understand the nature of risks and its characteristics which includes the level of risk. At this stage, business owners measure the frequency and severity of each risk. Severity is the outcome of the risk event, which

affects the business objectives. Frequency is the chance of the risk event to happen. At this stage, business owners must learn and understand the business risk tolerance.

This process can be done quantitatively, semi-quantitatively, or qualitative. Organizations typically use qualitative methods for its simple methods like brainstorming and evaluation using multi-disciplinary groups. However, qualitative method includes intuition and is subjective which lead to bias and degradation of the quality and validity of the result.

By quantitative method, business owners can use probabilities to express the chance of the risks occurring. The probabilities values can be expressed as frequency of risk happening, which can be obtained objectively by observation or subjectively estimated by the business owner. Apart from that, the impact of the risk will also be measured. At this stage, business owners will determine whether the risk level is acceptable when compared to risk appetite of the business.

Risk level can be determined by combining the frequency and severity of risks. The risk analysis equation to obtain a risk level is "Risk = consequence × likelihood". For example, a risk frequency and severity are rated from one for lowest frequency and severity, to five for the highest frequency or severity. Business owners can also use terms or variables to represent the values like "highly likely", "unlikely", "likely" or "highly likely" for the frequency of risks, and "negligible", "significant", "major", "catastrophic" for risk severity to assist other employees that might be less knowledgeable. If a risk has a severity of 3 and frequency of 4, the risk level is the multiplication of both values that is 12. At this stage, business owners must set a threshold of acceptability, which is the risk appetite. The risk levels can be presented in a risk map. An example of risk map is as presented in Figure 2.3.

Step 3 – Risk treatment.

The third common step is planning risk response, risk mitigation, or risk treatment. After obtaining the risk levels, risks can be ranked from the highest level to the lowest level, or the highest priority to the lowest priority. Risk treatment aims to select and implement options for addressing risks.

There are several methods that can be used by business owners to respond to a risk. A guideline such as risk management matrix as presented in Figure 2.4, or combinations of different strategies can be useful for business owners to plan, decide, and implement the risk mitigation actions or treatments to the risk faced. The treatments or actions may vary but have the same objective that is to reduce the probability of risk happening, and to provide protection against the adverse consequences of risk.

The mitigations actions are to be implemented by the business owners for every risk. This is because the business owners are the ones who knows best about the risks. Mitigating risks is not only for negative risks but also positive risks. Business owners can always exploit the risks, share, enhance or accept the risk to create wider opportunities. However, implementing all risk mitigations action is not cost effective, therefore, the actions must be within the business risk tolerance.

Step 4 –Risk monitoring and review.

The final common step is risk monitoring and review. Risk management is long term, continuous and requires constant monitoring. Regular and constant monitoring is important to ensure the decisions implemented were correct and correctly implemented. In addition, risk monitoring and review aims to ensure the underlying problems have not changed so much until a revised plans for managing the risks are required. Risk

monitoring and review aims to assure and improve the quality and effectiveness of process design, implementation, and outcomes.

Business owners are recommended to define a performance benchmark for effective risk monitoring. Risk monitoring can provide early warning and signs of increasing risk levels or identification of new risks. Early warnings give some time to business owners to decide on how they are going to react towards new risks or increasing risk levels. Risk monitoring acts as a follow-up actions and reviews for each risk. A re-evaluation and re-scoring process will be needed to ensure the progress of the risks after implementing mitigation action on them. At this stage, business owners can also include performance reports to review the effectiveness of the mitigation actions, and for variance analysis, earned value data, and forecasting. Some tools and techniques for risk monitoring and controls includes risk reassessment, risk audit, earned value analysis, technical performance measurement, reserve analysis, and status meetings.

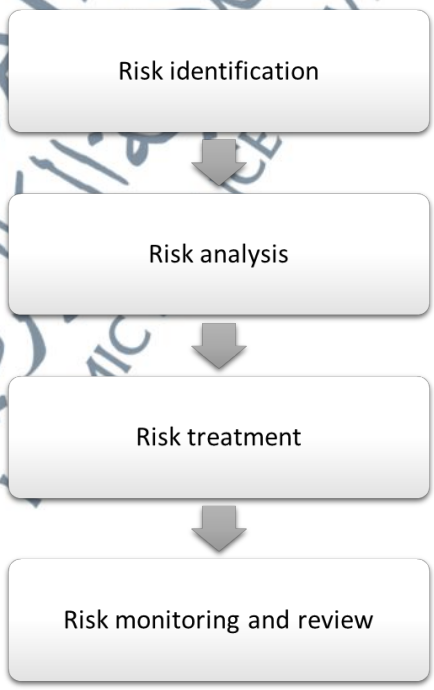

Figure 4.1: The common steps of risk management process from previous studies.

Table 4.1: Comparisons risk management processes by previous studies.

Purpose of risk management step following ISO 31000: 2018	Crane et al. (2013)	Ramly & Osman (2018)	Bensaada & Taghezout (2019)	Baranoff et al. (2009)	Srinivas (2019)
Establishing the context. To identify business objective, environment which organization seeks to define its objective and risk criteria.		Determine the purpose, issues, and consequences criteria.	Common terminology and context.	Communication.	
Risk identification To find, recognize and describe risks that might help or prevent an organization achieving its objectives.	Identify risk.	Risk identification.	Risk identification.	Identification.	Identification of risk.
Risk analysis. To comprehend the nature of risk and its characteristics including, where appropriate, the level of risk.	Measure risk; assess risk bearing capacity.	Risk assessment.	Risk analysis and measurement.	Risk profiling.	Risk assessment.
Risk evaluation. To support decision by comparing the results of risk analysis with risk criteria.	Evaluate risk tolerance; set risk management goals.	Determine risk appetite.	Risk capacity and profiling; risk strategic evaluation.		
Risk treatment. To select and implement options for addressing risk	Identify effective risk management; make a decision and implement the plan.	Determine risk treatment.	Response / treatment option identification and analysis; response / treatment implementation.	Risk mapping; risk management alternatives; comparison to current risk handling	Risk response planning.
Monitoring and review. To assure and improve the quality and effectiveness of process design, implementation and outcomes	Evaluate the results.		Monitor; review.	Ongoing monitoring.	Monitoring and controlling risk.

Table 4.1: Comparisons risk management processes by previous studies (contd.)

Purpose of risk management step following ISO 31000: 2018	Demek et al. (2018)	Panigrahi (2012)	Verbano & Venturini (2013)	Ekwere (2016)	Naude & Chiweshe (2017)	Falkner & Hiebl (2015)
Establishing the context. To identify business objective, environment which organization seeks to define its objective and risk criteria.	Objective setting.		Corporate and management objectives.	Establish the context.		
Risk identification To find, recognize and describe risks that might help or prevent an organization achieving its objectives.	Event identification.	Identify.	Identification.	Identify the risk.	Risk identification.	Risk identification.
Risk analysis. To comprehend the nature of risk and its characteristics including, where appropriate, the level of risk	Risk assessment.	Assess & analyse.	Evaluation.	Analysis of the risks.		Risk analysis.
Risk evaluation. To support decision by comparing the results of risk analysis with risk criteria.				Evaluate the risks.	Risk assessment.	Selection of methods.
Risk treatment. To select and implement options for addressing risk	Risk response.	Plan action.	Treatment.	Treat the risk.	Risk response – mitigation strategy.	Strategy implementation.
Monitoring and review. To assure and improve the quality and effectiveness of process design, implementation and outcomes	Control activities.	Monitor & implement. Measure & control.	Monitoring / auditing.	Monitor and review.	Risk monitoring and control.	Control.

4.3 Risk Management Process for Micro Business Using ISO 31000: 2018 Risk Management Guidelines as Basis

In comparison, the ISO 31000: 2018 Risk Management Guidelines develops a risk management process with six steps. The steps are scope, context and criteria, risk identification, risk analysis, risk evaluation, risk treatment, and monitoring and review. Table 4.2 presents the comparison of risk management steps developed by ISO 31000: 2018 with risk management steps present in the risk management processes developed by previous researchers.

Table 4.2: The comparison of risk management steps found in risk management processes developed by previous studies against ISO 31000: 2018.

ISO 31000: 2018	**Scope, context, and criteria**	**Risk identification**	**Risk analysis**	**Risk evaluation**	**Risk treatment**	**Monitoring and review**
Crane et al. (2013)		√	√	√	√	√
Ramly & Osman (2018)	√	√	√	√	√	
Bensaada & Taghezout (2019)	√	√	√	√	√	√
Baranoff et al. (2009)	√	√	√	√	√	√

Srinivas (2019)		√	√		√	√
Demek et al. (2018)	√	√	√		√	√
Panigrahi (2012)		√	√		√	√
Verbano & Venturini (2013)	√	√	√		√	√
Ekwere (2016)	√	√	√	√	√	√
Naude & Chiweshe (2017)		√		√	√	√
Falkner & Hiebl (2015)		√	√	√	√	√

From Table 4.2, there are a few similarities and differences between the ISO risk management process and previous studies. In the previous literature, four out of eleven selected research have the same risk management steps with ISO 31000 that are risk management processes developed by Ramly & Osman (2018), Bensaada & Taghezout (2019), Baranoff et al. (2009), and Ekwere (2016).

Combining the common risk management steps by previous studies as in Figure 4.1 with the ISO 31000: 2018 Risk Management Guidelines, this thesis proposes a risk

management process for micro business. The risk management process is as presented in Figure 4.2 and explained in the following paragraph.

Figure 4.2: The risk management process for micro business.

Step 1 – Establish the business context.

A business context is established by analysing the business. There are a few items that must be identified by the business owner when analysing the business such as business background and objectives, risk management objectives, background of the respondent or business owner, business stakeholders, and business products. The business owner must also identify their risk tolerance and available resources. For micro business, the context of the business can be determined through documents analysis, interviews, and walk-through observation of business premise.

Step 2 – Risk identification.

After establishing the context, the business owner needs to identify its risks. Studies have proved micro business owners have limited knowledge and skills on risk management process. Therefore, a suitable method must be chosen to identify risks. This is to ensure all risks are identified and no risks are left behind. To ensure all risks are identified, the business owner can start by identifying all problems and issues faced by the business, how the problems and issues impacted the business, and how the problems and issues are mitigated. The problems and issues can be identified prospectively or retrospectively.

The problems and issues are then translated to risks, impacts of problems and issues to risk impacts, and problems and issues mitigation technique to risk mitigation technique. Problems and issues can be categorized into different types of risks. For example, any issues that affect money flowing in and out of a business is categorized as financial risks. The translation from issues and problems to risks helps business owners to differentiate between business problems and business risks. It is important to distinguish between the two to ensure business risks are managed well to reduce or terminate the likelihood of the risks happening and the impacts of the risks if the risks occur.

Step 3 – Risk analysis.

Risk analysis is done by scoring the risk. Business owners are required to assess the likelihood and impact of the risks using retrospective or prospective method. The assessment can be done using a risk assessment scale of 1 to 5 as presented in Table 4.3. Risk scores can be obtained by multiplying the probability with impact of the risks. The risks scores are used to rank the risks for the next step.

Table 4.3: Risk Assessment Scale for Likelihood and Impact

Score	Likelihood	Impact
1	Rarely happen	Insignificant
2	Unlikely to happen	Minor
3	Possible	Significant
4	Likely to happen	Major
5	Almost certain	Catastrophic

Step 4 – Risk evaluation.

Risk evaluation is an important stage where the risks are mapped into a risk matrix according to the risk scores. The risk matrix is based on the risk score calculated in the risk analysis step. The risk matrix will follow risk map by Baranoff et al. (2009) and modified risk matrix by Hamir (2018) where the matrix is divided into four quadrants: (i) low likelihood, low impact, (ii) low likelihood, high impact, (iii) high likelihood, low impact, and (iv) high likelihood, high impact. Risks are categorized according to their scores where a low risk has risk score between 1 and 3, medium risk is between 4 and 8, high risk is between 9 and 16, and extreme risk is between 20 and 25. The matrix uses colour coding to indicate extreme, high, medium, and low risks. The 5x5 risk matrix is as presented in Figure 4.3.

Likelihood						
	Almost certain (5)	Medium (5)	High (10)	High (15)	Extreme (20)	Extreme (25)
	Likely (4)	Medium (4)	Medium (8)	High (12)	High (16)	Extreme (20)
	Possible (3)	Low (3)	Medium (6)	High (9)	High (12)	High (15)
	Unlikely (2)	Low (2)	Medium (4)	Medium (6)	Medium (8)	High (10)
	Rare (1)	Low (1)	Low (2)	Low (3)	Medium (4)	Medium (5)
		Insignificant (1)	Minor (2)	Significant (3)	Major (4)	Catastrophic (5)
				Impact		

Figure 4.3: Risk Matrix modified by Hamir (2018)

Step 5 – Risk response.

Risk response is a process of modifying risks by implementing mitigation actions to reduce likelihood and impacts of the risks. Risk response is to be made accordingly to the risk tolerance stated during establishment of scope, context, and criteria. In addition, the decisions to mitigate risks must be within a business' capacity and resources. The risk response planning uses risk responses as modelled by Baranoff et. al. (2009). Baranoff et. al. (2009) constructed the model using traditional risk management matrix with pure solution. The risk responses presented in Table 4.4 is used as a basic guide to mitigate risks. Business owners can use different methods such as insurance, selection of suppliers, production capacity, emergency planning, networking and cooperative relations, and asset securitization. These methods can be applied according to the quadrants where the risks are in. From the risk scores and colour coding produced in the previous step of risk management process, the risks will then follow the mitigation actions according to their respective risk scores, as modified and suggested by Hamir (2018) in Table 4.5.

Table 4.4: Risk responses by Baranoff et. al. (2009)

	Low likelihood	High likelihood
Low impact	Retain	Reduce
High impact	Transfer	Avoid

Table 4.5: Risk likelihood-impact, risk score, risk response, and risk mitigation actions

Risk Likelihood-Impact	Risk Score	Risk Response	Mitigation Actions
High Likelihood High Impact	Extreme (20-25)	Avoid	Remove risk source.
Low Likelihood High Impact	High (9-16)	Transfer	Take actions to reduce impact of risks.
High Likelihood Low Impact	Medium (4-8)	Reduce	Take actions to reduce likelihood of risks.
Low Likelihood Low Impact	Low (1-3)	Retain	Maintain current risk mitigation actions.

Step 6 – Monitoring and review.

After mitigations actions are implemented on risks, the risk level must be monitored. It is important to note whether the treatment plan reduce the likelihood of the risk, or the impact, or both. If the risk treatment does not affect or even increase the likelihood and impact of the risk, the business owner must have plans whether to accept the risk or find alternatives. The decision on alternatives must be made within the business's resources and risk tolerance.

Monitoring and review must be integrated in every step of risk management process to ensure a smooth progress. In addition, risk monitoring must be done periodically to ensure the risk treatments are in place. Apart from that, it is crucial to do

periodical review to ensure new risks are not left out, and risks that are well managed and already mitigated are well attended, so there will be no waste of resources.

4.4 The Practical Usability of the Risk Management Process

The evaluations questions handed to the respondents are returned within four to six weeks. The evaluations given by the respondents are attached in Appendix C of this thesis. The evaluation by the respondent is filled in the far right two columns of the table in Appendix C. For each question asked, the respondents give a clear answer. The following explains the details of findings for each step.

Overall feedback on the risk management process

All respondents agree that the risk management process is practical and easy to use. However, some respondents request a clearer guide like examples of business issues and business risk. Although the respondents understand their business risks, they cannot clearly describe the risks properly in words. All respondents find they can do risk management using the risk management process by themselves. However, the respondents prefer to have a risk advisors or consultants that they can refer to if they face any problem to do risk management. A summary of comments and evaluations from the respondents is presented in Table 4.6.

Establish the business context.

The first step of the risk management is to establish the business context. All respondents clearly understand their business background and business objectives. However, they have trouble understanding the term “stakeholder”. Since the respondents are sole proprietors, Respondent 2 finds she has no stakeholder since she

manages the business alone from taking orders to posting out the products to customers. Meanwhile, other respondents understand the term stakeholders as other associated agents, investors, mentors, and group leaders. They also understand the products they are selling. Respondents that process and produce their business products from scratch have clear understanding of the products they are selling. Similar to respondents who are business agents that receive products from the headquarters, they understand the journey of the products from manufacturing process until the products reach the customer. However, the respondents do not fully understand the term "business capacity and resources". All of them have enough funds to refund their customers if there are any damages on the business products. Some of them take extra precaution to ensure there is no need to refund while some of them make use of the headquarters' return and refund policy. However, they cannot clearly explain their business capacity in detail.

Risk identification.

The second step is risk identification. All respondents can easily figure out an issue faced by the business. They can also determine the impact of the issues to their businesses. However, they face difficulties when translating the issues to risk and the impact of the issues to impact of the risks. The respondent seems to understand the risks they are facing but they have difficulties to explain the risks and its impact.

Risk analysis.

The third step is risk analysis. All the respondents have no issues to score the risks using the guides given. They can also easily calculate the risk score given the formula.

Risk evaluation.

The fourth step is risk evaluation. All respondents face difficulties to map their risk into the risk matrix. They need more explanation on how to read the matrix, and how to put the risk in the grids. After explanation, all respondents easily map the risks into the risk matrix.

Risk response.

The fifth step is risk response. Respondents understand and can decide on mitigation actions for the risk they face. Some of them even have implemented the risk mitigation action on their risks. For example, a respondent who sells quail meat and eggs already provide a conducive environment for the quails to avoid the birds from being stressed. Stressed quails will result in bad meat and bad eggs and affect the cashflow of the business. One of the respondents added that it is hard for sole proprietors to decide on mitigation actions alone. She prefers someone who she can discuss with to help her decides the mitigation actions. The respondents have risks that yet to have mitigation actions. They find the risk response guidelines in Table 4.5 to be useful in making decision and keep the risks in check.

Monitoring and review.

The final step is monitoring and review. The respondents can monitor the risks if there are any changes in risk scores. They can also identify whether the mitigation actions taken help in reducing the likelihood of risk, or the impact of risk, or both. However, the respondents are not sure whether they can find alternatives if the current mitigation actions do not change the risk score, or even increase the risk level. Some of them needed guidance to help with deciding mitigation actions for the risks. All respondents

can set a schedule to ensure the risk mitigations are in place. They are also confident to continue the risk management cycle to ensure there is no new risks and all risks are attended.

Table 4.6: Summary of comments and evaluations from respondents on the proposed risk management process for micro business.

Proposed risk management steps	**Respondent 1**	**Respondent 2**	**Respondent 3**	**Respondent 4**
Establish the business context	- Understand business background and business objectives. - Business stakeholders are only business founders and leaders. - Know business product and understand the product flow before reaching customers. - Can identify business capacity in monetary term.	- Understand business background and business objectives. - No business stakeholders since she manages the business alone. - Know business products and understand the product flow before reaching customers. - Can identify business capacity in monetary term.	- Understand business background and business objectives. - Misunderstood the term stakeholder. - Know business products and understand the product flow before reaching customers. - Understand business capacity and business resources in monetary term.	- Does not fully understand business background - Fully understand business objectives. - No business stakeholders. - Know business products and understand the product flow before reaching customers. - Does not know business capacity and resources.
Risk identification	- Can identify business issues and impact of the issues. - Can translate issues to risk and impact of issues to impact of risk.	- Can identify business issues and impact of the issues. - Can translate issues to risk and impact of issues to impact of risk.	- Can identify business issues and impact of the issues. - Can translate and understand business risks and impact of the risks but cannot give a clear explanation.	- Can identify business issues and impact of the issues. - Can translate issues to risk and impact of issues to impact of risk.

Risk analysis	- Can score risk likelihood and impact. - Can calculate the risk score.	- Can score risk likelihood and impact. - Can calculate the risk score.	- Can score risk likelihood and impact. - Can calculate the risk score.	- Can score risk likelihood and impact. - Can calculate the risk score.
Risk evaluation	- Cannot map the risks in risk matrix.	- Can easily map the risk in risk matrix.	- Cannot map the risks in risk matrix.	- Can easily map the risk in risk matrix.
Risk response	- Can decide on mitigation plans and actions within the business capacity. - Risk response quadrant is helpful in deciding risk mitigation actions.	- Can decide on risk mitigation plans and techniques. - Still have risks that have no mitigations hence need guidance from others.	- Can decide and have already applied risk mitigation actions. - All risks are mitigated. - Risk response quadrant is helpful to keep the mitigations in check.	- Can decide on risk mitigation plans and techniques. - All risks are mitigated. - Risk response quadrant is helpful to keep the mitigations in check.
Monitoring and review	- Can monitor any changes of risk scores. - Can identify whether risk mitigation actions reduce risk likelihood, impact, of both. - Can find mitigations alternatives if current mitigations do not work. - Can set schedule to review risks, risk treatments and continue risk management cycle.	- Can monitor any changes of risk scores. - Can identify that risk mitigation actions reduce risk impact. - Not sure whether she can find alternatives to current risk mitigation actions. - Can set schedule to review risks, risk treatments and continue risk management cycle.	- Can monitor any changes of risk scores. - Can identify that risk mitigation actions reduce both likelihood and impact of the risk. - Can find mitigations alternatives if current mitigations do not work. - Can set schedule to review risks, risk treatments and continue risk management cycle.	- Can monitor any changes of risk scores. - Can identify that risk mitigation actions reduce both likelihood and impact of the risk. - Cannot find other alternatives to mitigate risks. - Can set schedule to review risks, risk treatments and continue risk management cycle

4.5 Proposed Risk Management Process for Micro Business

The feedback from the respondents opens a door for better modification of the risk management process. There is no added or omitted step of the risk management process that need. The risk management process after evaluation remains the same as in Figure 4.2. However, they explanations for each step is now different. The summary of the risk management process for micro business is presented in Table 4.7.

Overall, the language level used in the risk management process must be easy to understand and of lay terms. The business owners need a heavy guidance to do risk management. An example of a complete risk management process can also be added as a guide for the business owners. The following explains the improvements for every step in the risk management process. In conclusion, the risk management process after evaluation remains the same as in Figure 4.2. However, they explanations for each step is now different.

Establish the business context.

The business context can be established by identifying a few items relating to the business. The items are business background, objectives, stakeholders, and products. The term ‘stakeholder’ must be changed to a term that is easier to understand. Instead, business owners can determine who are their customers, suppliers, and other parties who are involved in their business, like courier services. Business owners must also identify their business capacity by answering questions like ‘how much can you bear in monetary term if theft happen at the business premise’ and ‘is there anyone that can replace the business owners to manage the business if the business owners fall sick’.

Risk identification.

The second step is to identify risks. Business owners begins identifying risks by finding out the problems and issues faced by the business. Then, the business owners will translate the problems and issues to risks. However, a clear definition and example of business issues and business risk to assist business owners in translating business issues and problems to business risk. Business issues is any issues and problems that have happened or currently happening to the business. Business risk is any events that have happened, currently happening, or may happen again in the future, which impacts the business objectives. Examples and guidance must be given according to their business context so they can clearly define the business risks. At this stage, business owners also need to identify the impacts of the problems and issues. The impacts of problems and issues are then translated to impacts of risks.

Risk analysis.

The third step is risk analysis. Risk analysis is a process of scoring the risks. Business owners can begin by scoring the likelihood and impact of the risks using risk assessment scale of 1 to 5. The risk assessment scale is as presented in Table 4.3. Then, the values of likelihood score and impact score is multiplied to obtain risk score or risk level.

Risk evaluation.

Risk evaluation can be done by ranking risks according to the risk score or risk level obtained from risk analysis. Though the micro businesses do not have as many risks as big companies, they are the most vulnerable group and the business mostly contribute to their current income. Therefore, evaluating the level of the risks is important but they need an easier method to do so. The output of this step is a list of risks ranked according

to their risk score. The ranking allows business owner to oversee risks with high score that should be prioritized for mitigation actions.

Risk response.

Business owners normally already have mitigation decisions for the risks identified. However, they are some risks that are yet to have any mitigation decision. Therefore, a guidance to mitigate risks according to the score like in Table 4.5 is helpful for the business owners. Apart from the guidelines in Table 4.5, business owners also need someone who they can discuss with to decide on mitigation actions. Therefore, the presence of risk consultant is helpful in assisting business owners to decide on risk mitigation actions.

Monitoring and review.

The final step is monitoring and review. Business owners must monitor their risk and set a schedule to review the identified risks. Risk monitoring is important to ensure whether the mitigation actions are in place and reduce the likelihood and/or impact of the risks. Business owners must also set a schedule to do a regular monitoring on the risks level. In addition, business owners need an exposure through trainings, seminars, or even websites, to various risk mitigation methods to help them decide on alternative risk mitigation if the current mitigation do not reduce the risk levels. Business owners must also be reminded that the risk management process is a continuous cycle, so they are prepared to do repeat the process according to the schedule they set.

4.6 Risk Management Process for Micro Business After the Practical Usability Evaluation

After the evaluation, the risk management process is easier to be understood by the intended user, which is the micro business owners. The languages and terms used in the risk management process are easier to understand, especially for users that are not in the risk management field. The risk management process is intended for sole proprietor micro business owners. Therefore, the risk management process is designed as simple as possible to be fully utilized by micro business owners to manage the business risks alone but follows the global standard ISO 31000: 2018. The risk management process also helps micro business owners to foresee the path for the business to grow.

However, there are some weaknesses of the risk management process. the risk management process is not comprehensive. There are methods, techniques, and tools that are omitted from the ISO 31000: 2018 risk management process and risk management processes developed by previous authors. For example, mitigation tools like insurance or asset securitization cannot be suggested to the business owners since the tools can be expensive for them. The methods, techniques, and tools have to be omitted for the sake of simplicity so the business owners can use the risk management process with ease.

Furthermore, communication between the business owners with business stakeholders might also be difficult since the business owner manages everything alone. Furthermore, the micro business owners demand for consultant to help with risk management process. This means they still have difficulties to fully understand the risk management process and requires help form someone who is more knowledgeable.

Table 4.7: Summary of the risk management process developed for micro business by this thesis.

Steps	Description
Establish the business context	- Business information – business backgrounds, objectives, stakeholders, products, capacity, and available resources - Use questions and examples: o To identify business stakeholders o To identify business capacity and available resources
Risk identification	- Clear definition and differences of business problems and issues, and business risks - Identify business problems & issues - Translate the business problems & issues to business risks - Identify impacts of the problems and issues to the business - Translate the impact of the problems and issues to risk impacts
Risk analysis	- Scoring the likelihood of identified risks - Scoring the impact of identified risks - Calculate risk score by multiplying the risk likelihood with risk impact (Risk score = likelihood score × impact score)
Risk evaluation	- Rank the risks according to the risk score calculated - Output: a list of business risks according to the risk score
Risk response	- Guidance to mitigate risk (Table 4.4) - Aid from risk advisor or consultant to decide on mitigation actions
Monitoring and review	- Monitor risk level & set a schedule to review the identified risks - To ensure mitigations are in place and reduce the impact and/likelihood of the risks - Risk management is a continuous cycle; therefore, business owners must be prepared to repeat the process following the schedule

4.7 Discussions on the Risk Management Processes Developed for Businesses

The first research question of the thesis asks what are the risk management processes developed for business. Table 4.1 shows that there are variety of risk management processes developed for different areas of risk management in business. There are studies that developed only four risk management steps like Panigrahi (2012) and Srinivas (2019), and a longer risk management steps such as developed by Bensaada & Taghezout (2019). The variety of risk management processes developed indicates that risk management process can be customized according to the business necessity (Technical Committee ISO/TC 262, 2018). After comparing and grouping the

previous risk management processes, the thesis finds that all previous risk management processes converge to the risk management process developed by ISO 31000: 2018.

Figure 4.1 presented the common steps of the risk management processes developed by previous studies. The common steps are risk identification, risk analysis, risk treatment, and risk monitoring and review. The result shows these four steps of risk management process is sufficient for business to do risk management. A risk management process with longer risk management steps is good for businesses as it addresses more items needed for risk management in detail. However, micro business owners have limited knowledge and less exposure on business management (Abdul Rahman et al., 2016). Therefore, a long risk management steps can be difficult for micro business owners to follow.

4.8 Discussion on the Risk Management Process Proposed for Micro Business Using ISO 31000: 2018 as Basis

The second research question asks what is the risk management process for micro businesses that uses ISO 31000: 2018 Risk Management Guidelines as basis. The thesis compares the risk management processes developed by earlier studies with risk management process developed by ISO 31000: 2018. The outcome is presented in Figure 4.2. Each step of the risk management process in Figure 4.2 is modified and simplified so the risk management process is formal, practical, and easy to be used by micro business owners. The modification is made so SMEs can apply the risk management process to help them identify and treat their business risks (Ekwere, 2016).

Risk management is difficult to be fully adapted since it is time consuming and needs a lot of resources (Tan & Lee, 2021). SMEs especially micro business needs the adoption of a proper risk management strategy because they lack resources to develop

their own standard and respond to threats (Ekwere, 2016; Krüger & Meyer, 2021). It is known that SMEs especially micro business are vulnerable to risks which may lead to failure of the business. Therefore, it is beneficial for SMEs, especially micro businesses to have their own template of risk management process that can be fully utilized on their own.

4.9 Discussion on the Practical Usability of the Risk Management Process Developed for Micro Business

The third research question of this thesis is how the developed risk management process can be practical and easy to use for micro business owners. The answer to this question is summarized in Table 4.7. The feedbacks from the respondent of this thesis clearly show that they know and understand the risks faced by their business. However, the risk management process is vague and informal. The outcome strengthens the findings by Gao et al. (2013); Md. Sum & Hamir (2020); Md. Sum & Mahussin (2017); Mitter et al. (2020); and Poba-Nzaou & Raymond (2011).

The business owners have limited knowledge on risk management. Hence, risk management terms and jargons need to be changed to a lay term. The choice of language used is very important for both risk management process developers and users. As suggested by Bensaada & Taghezout (2019), the characterization of terminology used for the risk management process is important to ensure there is no misunderstanding and miscommunication of information in the future.

Apart from that, the respondent of this thesis uses different and informal tools and method to manage their risks. As mentioned by Tudor et al. (2014), choice of risk management tools is part of a complex and multidimensional decision-making process

that is hard to quantify. Therefore, risk management developers cannot put a limit on what tools should or should not be used by the business owners.

4.10 Summary

This chapter presents the risk management processes developed by previous studies. The analysis shows there are four common steps of risk management process. A combination between risk management processes developed by previous studies combined with ISO 31000: 2018 Risk Management Guidelines produce a risk management process for micro business. The risk management process for micro business is further evaluated by respondents to produce a risk management process that is tailor-made for micro businesses.