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INVESTIGATING THE CURRENT RISK MANAGEMENT PROCESS PRACTICE IN MALAYSIAN LANDSCAPE PLANNING PROJECTS

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Abstract

The Malaysian landscape planning projects are dynamic, subjective, and fast-tracked, causing multiple risks. Hence, risk management practice is needed to manage risks. However, the risk management process is not managed comprehensively despite the considerable capability of project practitioners to predict, analyse, and treat project risks, causing the project to underperform. This study has investigated the current risk management process in Malaysian landscape planning projects. Data were gathered through semi-structured interviews with twenty-four landscape architect practitioners from Klang Valley. The information from the interviews was analysed utilising the content and thematic analysis method. The six steps of the risk management process were not managed following the suggested methodology, whereby the procedure was carried out in an ad hoc, unstructured, and incomplete manner. This action has caused extensive risk impact which affected project performances. This finding will teach project practitioners to evaluate their current practice and recommend the adoption of formal risk management in landscape planning projects.

Keywords: risk management; risk management process; landscape planning project

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INTRODUCTION

The nature of landscape planning projects is dynamic, complex, and fast-tracked with a subjective outcome that exposed the projects to a high degree of risk (Godi and Sibelius 2012). Project risk could become a critical issue that hinders the project from achieving its objectives. As a result, risk management is useful to improve project performance regularity through accurate and systematic risk management during the project's inception (Keers and van Fenema 2018; Willumsen et al. 2019). It can also be incorporated into the project management process (ISO 31000:2018 2018; PMI 2017). Risk management is a well-known skill used worldwide with the majority of its standards and guides focusing on the concepts, process, strategy, and technique of practice.

However, risk management is not extensively used in the Malaysian construction business. Due to a lack of information and awareness of its benefits, project risks are managed on an ad hoc basis (Adnan and Rosman 2018; Fadzil, Noor, and Rahman 2017; Tung, Chia, and Yan-Yan 2021), causing apprehension about its adoption. Risk management is handled differently in Malaysian construction projects, depending on corporate regulations, resource allocation, and project nature (Fadzil et al. 2017). Moreover, Chong and Kamarudin (2018) mentioned the lack of coordination, imbalance of top-down commitment, and long-term planning in risk management. Instead of managing the project risk as a whole, most companies use easy, quick, reasonable, and economic approaches to identify it (Adnan and Rosman 2018).

Landscape planning and design, also known as design profession, is often grouped with the construction industry in the statutes on architecture, town planning, and engineering as a professional construction service (ASLA 2019). The scale of the project is considered in the landscape sector. Although a professional landscape architect possesses excellent design and technical expertise, a management system is needed to systematically warn them of potential risks, quantify consequences, and determine appropriate actions to control risks using the best available tools and techniques (S.Muthuveeran et al. 2021; Tung et al. 2021). Landscape architects face increased risks in today's industrial complexity as the liability grows (Godi and Sibelius 2012), especially when there are urban green areas and pedestrian safety (Hoon Leh et al. 2013). This liability risk is due to several factors. Specifically, landscape architects play a more prominent role in specific projects. The project scope is expanding, society is becoming more litigious, new contractual systems are being used, and client expectations are rising (Godi and Sibelius 2012). The most appropriate system for providing effective landscape planning project outcomes is the risk management application that includes the process of discovering, analysing, and responding to project risks (S.Muthuveeran et al. 2020).

Preliminary findings revealed that the risk management procedure was not comprehensive. Professional indemnity insurance and contract management

clauses help landscape architects in controlling risks. Those involved in a project often analyse and inform landscape architects on potential concerns. The impact of project risk is materialised and further compels project performances. Since the study is speculative, it assumes that the phenomenon is related to the risk of not following the recommended approach. As a result, the study's goal is to investigate the current risk management process in Malaysian landscape planning projects.

RISK MANAGEMENT PROCESS

The risk management process is divided into various parts, which vary in terms of standards or guidelines. The research discovered differences in risk process terminology and grouping pattern. Despite having different steps, the risk process is still identical. This research looked at the risk management process and produced eight criteria and guidelines (APM 2010; AS/NZS 4360:2004 2004; BS 6079-3:2000 2000; BS IEC 62198:2001 2001; CAN/CSA-Q850-97 2002; IEEE Std 1540-2001 2001; PMI 2017). According to the eight standards and guidelines, the risk management process is similar to the six key steps. The risk management process is divided into six steps as shown in Figure 1: 1) Establishing Risk Context, 2) Risk Identification, 3) Risk Analysis, 4) Risk Treatment, 5) Monitoring and Review, and 6) Communication and Consultation.

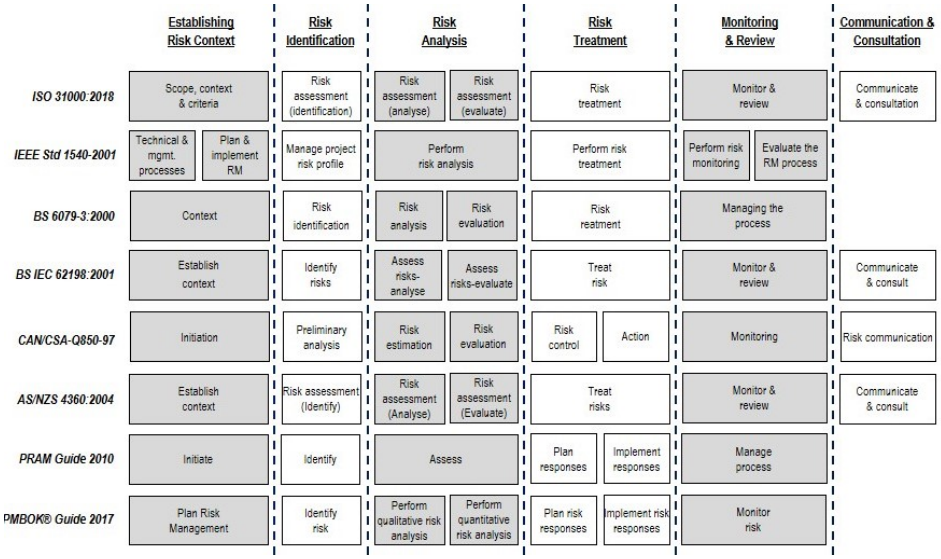

Figure 1: Summary of risk management processes

Establishing Risk Context is the initial step in defining a risk management project. The scope, objectives, project setting, level, kind, and

viability of risk management will be determined through this process (PMI 2017). This process also determines the risk treatment criterion, asset, and experts. There are formats and procedures for recording and organising risk management exercises throughout the project lifecycle (PD 6668:2000 2000). The outcomes are a brief description of task goals and progress criteria and a system for risk management and assigning risk owners (PMI 2017).

Risk Identification, which is a method for predicting future events, will impact the specified goals. Risk occurrences can cause problems. The Project Management Institute (2017) established that risk identification is about determining "what can go wrong?" The process helps determine what, how, and why things happened. It is a creative project that removes objective facts. As a result, all parties affected by the decisions should be consulted. Their abilities and knowledge should be used to determine the viability of risk management through identification (BS 6079-3:2000 2000).

Risk Analysis considers the probability and underlying drive of the risk that may occur to answer the question "how significant is the risk?" It determines the likelihood of a risk and the magnitude of an impact. After analysing and evaluating each risk, it prioritises risks based on their effects on the overall project's objectives (PMI 2017). The process adopts three approaches: qualitative, semi-quantitative, and quantitative risk analysis (BS IEC 62198:2001 2001; PMI 2017).

Risk Treatment can decide on a reasonable reaction to the risks that were identified and analysed before limiting their effects. This process establishes a system to reduce potential threats and expand potential opportunities (PMI 2017). Point-by-point action plans for each risk are produced where this stage's consideration is essential to avoid shocks for the risk. Various ways are relevant for risk response and treatment such as avoiding, reducing, transferring, or accepting the risk (PMI 2017).

The Monitoring and Review process is carried out to determine and manage risks. It promotes the significance of reviewing the risk status (Kang et al. 2015). According to PMI (2017), the technique is repeated to screen leftover risks and identify new risks. Processes for checking and investigating risks are linked to other management procedures. A typical project lifecycle in a management meeting displays key project phases and milestones. This process reinvestigates present risks and monitors residual risks and reactions.

Communication and Consultation is essential in risk management. It guarantees that the contractor's risk management approach is viable by involving appropriate individuals at a proper time and guaranteeing their comprehension. Early risk communication improves risk management applications and increases the institution's risk appetite. It ensures that all project partners know the potential risks and the lessons learnt may be used for future initiatives.

RESEARCH METHODOLOGY

The research methodology included exploratory case analysis. The research is divided into four stages: preliminary study, data collection, analysis, and interpretation. First, the researcher conducted a background study on the research's history, need, gap, and goals. Second, twenty-four professional landscape architects in the Klang Valley were interviewed via semi-structured interviews. In line with the exploratory study, open-ended questions using an aide-memoire to give them leeway and freedom for their responses (McNamara 2017). The researcher recorded audio recordings and project documentation, transcribed the text, and used ATLAS.ti 8, which is a documented and organised research software. Third, the content analysis identified and described the codes, categories, and topics (Mayring 2014). In addition, the thematic analysis was conducted to understand the data and create thematic maps linking various themes. The analysis explored the relationship between subject themes and determined the patterns (Maguire and Delahunt 2017). Finally, this study discovered the mapped and reported interpretations that analyse the current risk management approach in Malaysian landscape planning projects. The conclusion was based on the research objectives.

Twenty-four interviewees responded based on the predetermined sampling criteria in representing the landscape planning project. The following are the requirements of the interviewees: 1) individuals from landscape planning and design firms who are professional landscape architects; and 2) their current organisation held managerial and decision-making positions, indicating that they influence the policy and practice on the ground. All interviewers had more than ten years of experience in the sector. In a whole cycle of landscape projects in the urban region in Klang Valley, Malaysia, they have been involved in various project sizes, locations, and scopes. Each interviewee was assigned an alphanumerical code (L01 to L24) for easy identification and the information of the interviewees is shown in Table 1.

Table 1: Interviewees' information

Interviewees	Interviewees' Position	Interviewees' Background		Interviewees' Organisation Background		
		Education	[a] Years of Experience	[b] Years Established	[c] Headcount Size	[d] Total Ongoing Project
L01	Director	Abroad	Expert	Established	Small	Medium
L02	Proj. Director	Local	Intermediate	Established	Small	Medium
L03	Director	Abroad	Expert	Established	Small	High
L04	Director	Local	Expert	Established	Small	Medium
L05	Principal	Local	Intermediate	New	Small	Low
L06	Director	Local	Expert	Established	Small	Low
L07	Director	Local	Intermediate	New	Micro	Medium
L08	Director	Local	Intermediate	New	Micro	Low
L09	Director	Abroad	Expert	New	Small	Low
L10	Director	Abroad	Expert	Intermediate	Small	Medium

Interviewees	Interviewees' Position	Interviewees' Background		Interviewees' Organisation Background		
		Education	[a] Years of Experience	[b] Years Established	[c] Headcount Size	[d] Total Ongoing Project
L11	Associates	Local	Intermediate	Established	Small	Medium
L12	H. Contract	Local	Intermediate	New	Small	Medium
L13	Director	Abroad	Expert	Intermediate	Small	Low
L14	Director	Local	Intermediate	New	Small	Medium
L15	Director	Local	Expert	Established	Small	Medium
L16	Director	Local	Intermediate	Intermediate	Micro	Medium
L17	Principal	Local	Intermediate	Intermediate	Small	Medium
L18	Director	Local	Intermediate	New	Micro	Low
L19	P. Director	Abroad	Expert	Established	Small	Medium
L20	Director	Local	Intermediate	New	Small	Medium
L21	Director	Abroad	Expert	Established	Small	Medium
L22	M.D.	Local	Expert	Established	Small	Medium
L23	Director	Local	Intermediate	New	Micro	Low
L24	Director	Local	Intermediate	Intermediate	Small	Medium

Notes:
[a] Beginner (< 10 years) / Intermediate (10 < 20 years) / Expert (> 20 years)
[b] New (< 10 years) / Intermediate (10 < 20 years) / Established (> 20 years)
[c] Micro (< 5) / Small (5 < 30) / Medium (30 < 75): Malaysia's Small and Medium Enterprises (SME) classification
[d] Low (< 20) / Medium (20 < 40) / High (> 40)

RESULTS AND FINDING

In the semi-structured interviews, 24 landscape architects were asked about their risk management process. Establishing risk context, risk identification, risk analysis, risk treatment, monitoring and review, and communication and consultation are the six risk management steps discussed during the interview. The showcard method was used to elicit and improve responses on practical techniques to reduce risks in landscape projects.

Establishing Risk Context

The respondents were asked to describe how their organisation defined their objectives in project risk management based on internal and external circumstances. The outcomes show 15 coded feedback and seven groups as summarised in Figure 2.

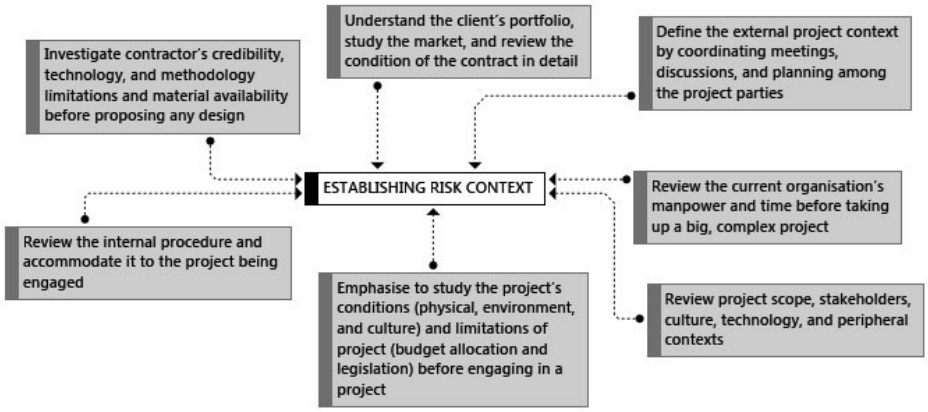

Figure 2: Establishing risk context - codes and categories
Source: ATLAS.Ti diagram, Author (2021)

According to the literature, there was no formal practice for establishing risk context. The risk context is managed as part of the project management context where the risk context is not fully acknowledged. First, the external context is established; then, the internal context is updated along with the project schedule. This scenario is understandable as landscape planning and design organisations rely on project delivery and stakeholders' satisfaction.

Risk Identification

This study has inquired how the interviewees identified project risks. Figure 3 shows 116 coded feedbacks divided into 25 categories and five topics.

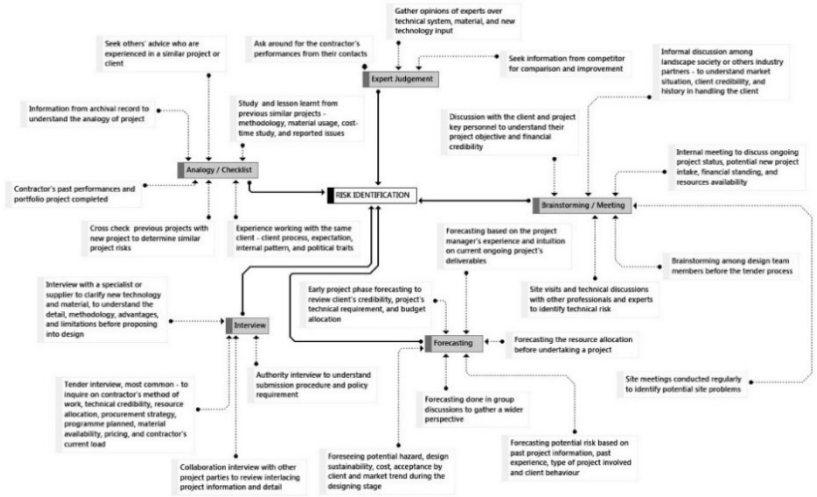

Figure 3: Risk identification - codes, categories, and themes
Source: ATLAS.Ti diagram, Author (2021)

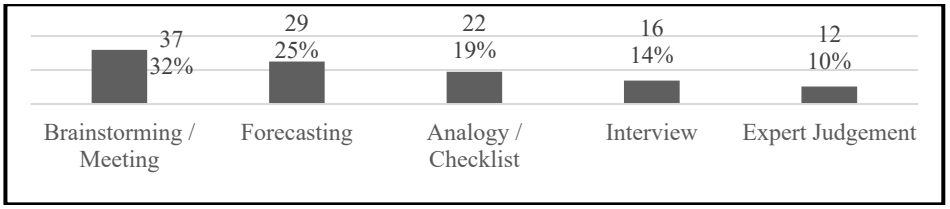

Figure 4: Summary of risk identification

As indicated in Figure 4, the most common method for identifying project risks is brainstorming/meeting. Some examples of site meetings are site visit, casual project party conversation, and internal operational talk. Forecasting is the second most popular method of predicting project hazards. Besides anticipating the client's behaviour and credibility, respondents frequently used their experience and knowledge to forecast project dangers based on historical project information, group conversations, or projections from current projects. By recycling facts and information from the scenario, the analogy/checklist technique is considered a critical thinking paradigm that handles new difficulties based on former or comparable experiences. The interview technique is normally used to address project challenges such as doubts and other technical aspects that are not covered by the project team. Finally, expert judgement is utilised to obtain experts' opinions on project matters. Advise or interviews are kept confidential to avoid problems or confrontations.

Risk Analysis

Based on the nominal scales of likelihood and consequence, scenario analysis is a common risk analysis technique in construction. The interviewees were asked to explain how they assessed risk implications and their likelihood. Figure 5 shows the results of coding 24 pieces of feedback into ten groups and three themes.

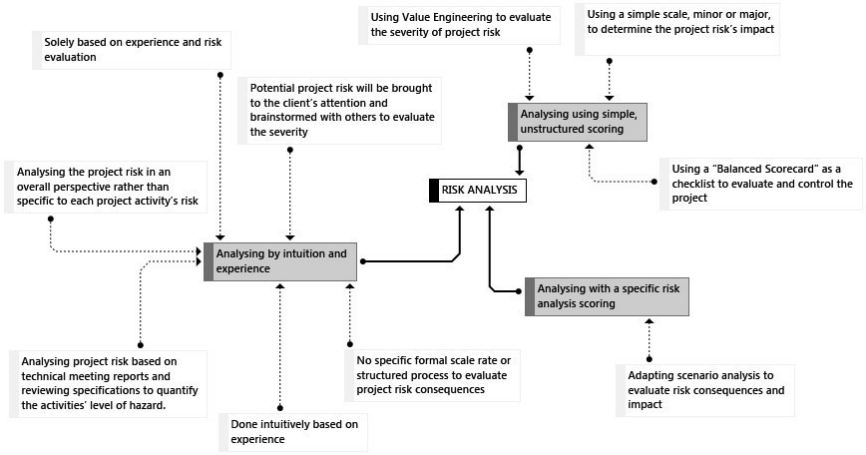

Figure 5: Risk analysis - codes, categories, and themes
Source: ATLAS.Ti diagram, Author (2021)

Figure 6 shows that the majority of interviewees (19 [79%]) used intuition and experience to justify the project risk impact. They also did not use a uniform scale rate or systematic process for assessing the project risk. Four interviewees (17%) used unstructured scoring for the project risk analysis. Only one (4%) interviewee used a specific risk scenario analysis to assess the risk impact.

In summary, the projects lacked precise risk rating instruments as proposed by the systematic risk analysis approach. The project managers' experience and intuition can also assess potential dangers, which is considered not a good risk analysis strategy. It is believed that project managers' arguments may be unclear and vulnerable to criticism, as well as establish biases and others may misconstrue their analytical technique.

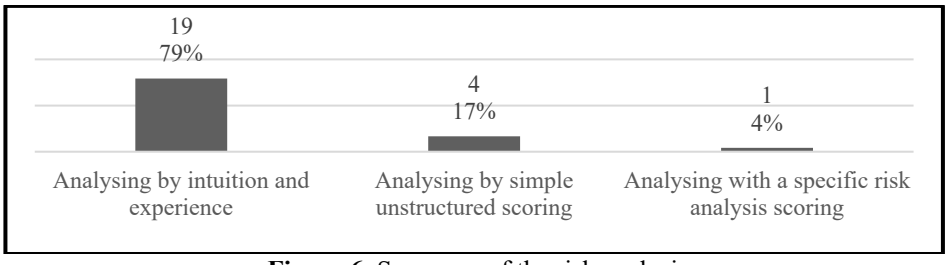

Figure 6: Summary of the risk analysis

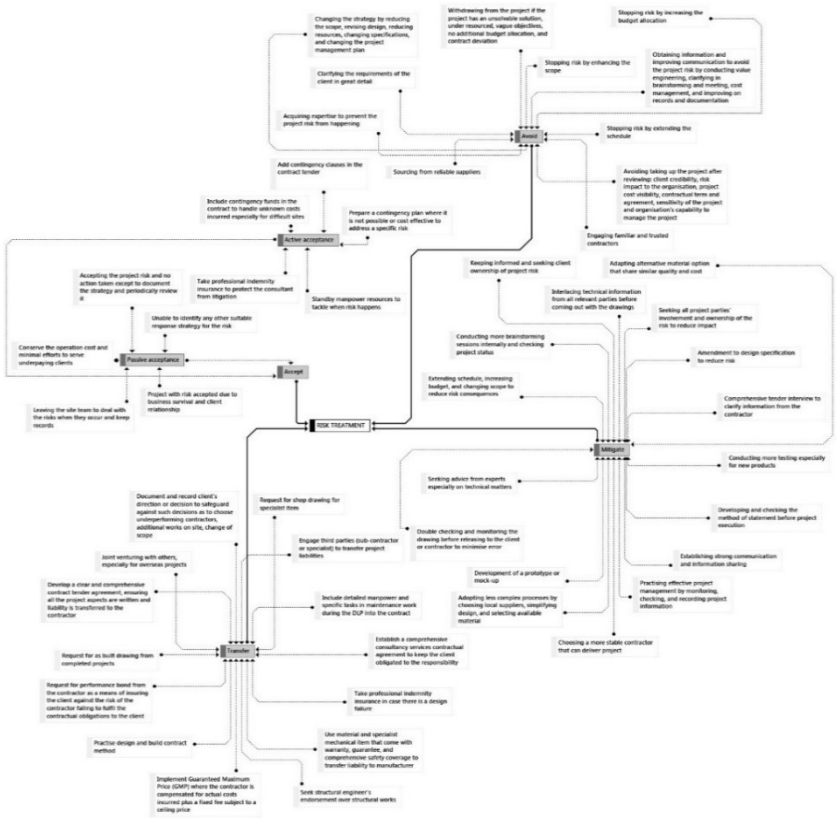

Figure 7: Risk treatment - codes, categories, and themes
Source: ATLAS.Ti diagram, Author (2021)

Risk Treatment

The interviewees were asked about the strategy used to manage project risks. Figure 7 shows 197 coded responses that were divided into 52 categories and four themes.

Figure 8 shows that interviewees preferred avoiding (35%) and minimising (31%) risk treatment options. Both procedures were used when they could detect and assess dangers earlier. They used these tactics as project managers to reduce risks. Transferring (20%) the risk was used when another person caused the risk and ownership was not possible. This technique was used when absorbing the risk is cheaper than transferring it to others. Finally, accepting (14%) the risk was done when there was no other option or when the risk had a modest influence on the project outcome.

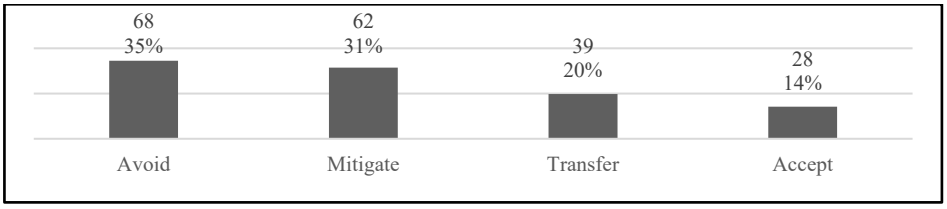

Figure 8: Summary of risk treatment

Monitoring and Review

The interview sessions questioned the interviewees on how they monitored and reviewed project risks. Figure 9 shows 81 coded feedback that are divided into 17 categories and three themes. Most interviewees stated that internal meetings were held periodically to explore and address potential project hazards. Most interviewees agreed that their organisation's principal, colleagues, and seniors were accountable for monitoring and reviewing project risks. The risk procedure was not explicitly recorded. Hence, the data are not traceable. Overall, the risk procedure was not appropriately monitored and assessed where it is only a part of the continuing project activity.

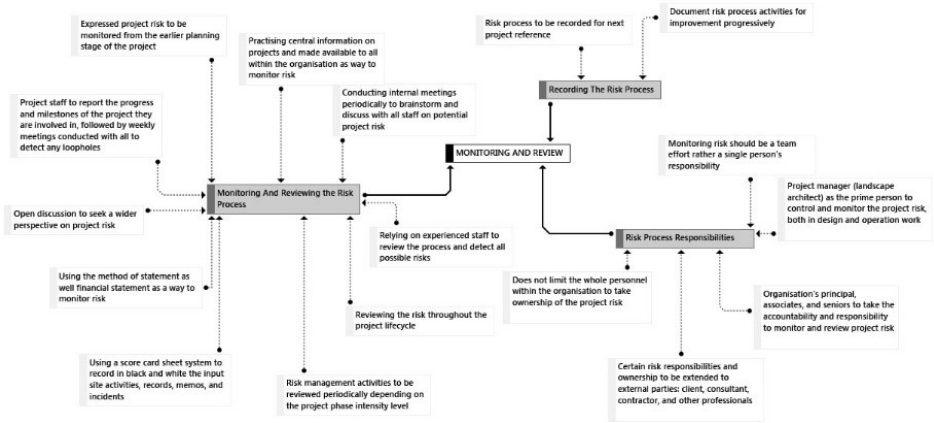

Figure 9: Monitoring and review - codes, categories, and themes
Source: ATLAS.Ti diagram, Author (2021)

Communication and Consultation

The interview questioned how the participants communicate and consult each other regarding project risks. Figure 10 shows the findings of 24 coded feedback divided into three categories.

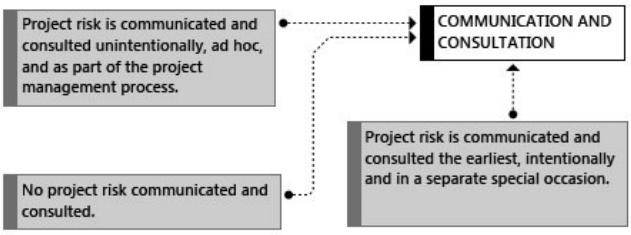

Figure 10: Communication and consultation- codes and categories
Source: ATLAS.Ti diagram, Author (2021)

The majority of 12 interviewees (50%) said that project risk was not communicated and was normally dealt with by the project team daily. Moreover, initial project dangers were not recorded and attended to by the team. Eleven (45.8%) participants expressed risk communication based on context and scenario. Rather than conducting a discrete session, the risk was often discussed as part of the project operation. Only 1 interviewee (4.2%), L12, said that their project risk has been communicated and consulted specifically.

DISCUSSION

Every risk process practice is summarised where there is no explicit risk context establishment and most of them are project management procedures. Risks are recognised impromptu via meeting, forecasting, analogy, interview, and expert opinion. Risks are assessed using experience and intuition rather than precise data analysis procedures. No risk was quantified. The project preferred proactive therapy by avoiding, minimising, transferring, and active acceptance. No specific methods or techniques were used to monitor or review risks. Finally, most risks were not communicated or consulted.

This study examined the completeness of the six steps of the risk management process. It classified the level of completion into three categories: complete, intermediate, and incomplete (Table 2). Figure 11 shows that 12 (50%) out of 24 interviewees were in the "Incomplete" category, revealing that they did not fully practise the three steps of the core risk identification-analysis-treatment processes. The "Intermediate" group consisted of five interviewees (21%) who used all three steps of the core risk identification-analysis-treatment processes. Only seven (29%) landscape planning and design firms interviewed had completed all six steps of the risk management process.

It is found that there is a lack of practice in the six steps of the risk management process. Most of the risk management process actions were ad hoc and not realised. Besides that, low-risk tools and approaches were used instead of the standard's broad approach. In practice, rudimentary tools and procedures with limited applications were used.

Table 2: Completeness of the overall risk management process practice

Interviewees	Establishing Risk Context	Risk Identification	Risk Analysis	Risk Treatment	Monitoring And Review	Communication And Consultation	Overall Risk Management Process Practice
L01		√		√	√		**Incomplete**
L02		√		√			**Incomplete**
L03		√	√	√	√	√	**Intermittent**
L04		√		√	√	√	**Incomplete**
L05	√	√		√			**Incomplete**
L06	√	√	√	√	√	√	**Complete**
L07		√		√			**Incomplete**
L08	√	√		√			**Incomplete**
L09		√	√	√		√	**Intermittent**
L10	√	√	√	√			**Intermittent**
L11	√	√	√	√	√	√	**Complete**
L12	√	√	√	√	√	√	**Complete**
L13		√	√	√		√	**Intermittent**
L14	√	√		√			**Incomplete**
L15	√	√	√	√	√	√	**Complete**
L16		√		√		√	**Incomplete**
L17		√		√	√		**Incomplete**
L18		√		√	√		**Incomplete**
L19		√	√	√	√		**Intermittent**
L20		√		√	√		**Incomplete**
L21	√	√	√	√	√	√	**Complete**
L22	√	√	√	√	√	√	**Complete**
L23		√		√	√		**Incomplete**
L24	√	√	√	√	√	√	**Complete**
Totals	**11**	**24**	**12**	**24**	**15**	**12**	

Note: *Complete: Practised all 6 steps of the risk management process*
Intermediate: Practised 3 steps of the core risk management process (Identify-Analyse-Treat)
Incomplete: Missed 1 or 2 steps of the core risk management process (Identify-Analyse-Treat)

The findings revealed huge discrepancies from the effective risk management process practice as suggested by APM (2010), ISO 31000:2018 (2018) and PMI (2017). Throughout the project lifecycle, risk communication and monitoring should be done continuously. The Malaysian construction industry uses similar methodologies to identify risks rather than managing risks as a whole process (Adnan and Rosman 2018). The Malaysian construction business has no defined risk management principles or regulations. Due to a lack of understanding of risk management implementation and awareness of its benefits, the industry did not use the recommended strategy (Abdul-Rahman, Wang, and Mohamad 2015; Kang et al. 2015).

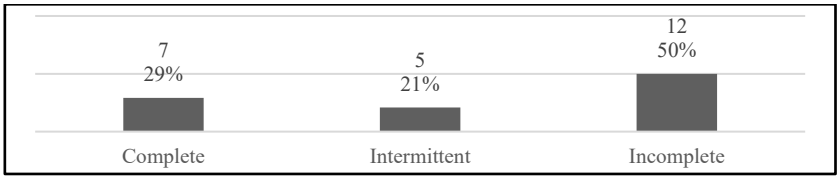

Figure 11: Summary of the completeness of the risk management process

CONCLUSION

Risk management is rarely used in landscape planning. Although formal risk management techniques are established, most of the processes are informal and unstructured. Risk management is frequently not well handled due to a lack of understanding in risk management implementation and awareness of its benefits. A systematic and organised approach for project risk management is required. This phenomenon explains why project risk impacts project performance. This study provides a recommendation to project practitioners on how to analyse their current practice and improve their risk management process application. It is advised that project practitioners needed proper risk management in handling landscape planning projects as it will boost project results.

This study is limited to case study interviews focusing on landscape architects. However, it does not disregard the value of other practitioners' perspectives. Second, this study used qualitative research methods due to the practitioners' limited risk management understanding.

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