

Analysis on the Components of a Crisis Management Model to be Developed for the Sri Lankan Construction Sector.

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Abstract — *The construction sector in Sri Lanka is one of the diversified sectors. Further, it is one of the main contributors to the economy of the country. In addition, construction sector is highly labor-intensive. In the recent past, the sector has faced many challenges due to many different types of crises such as the COVID-19 pandemic, the economic crisis in the country etc. Therefore, the need for a crisis management model is identified. This research focusses on the components to be considered when developing a crisis management model for the construction sector in Sri Lanka. The research is conducted as quantitative research where the conceptual framework is developed from the literature review and based on the same, a questionnaire survey is conducted. The research participants include industry experts who have many years of industry experience. The outcomes of the data analysis are represented in this paper together with a discussion on the findings of the research. Accordingly, the components to be considered in the development of a crisis management model in the construction sector have been identified in this research. The final data analysis has been used for the purpose of understanding the components to be considered when developing a cross management model.*

Keywords — Crisis in construction, Crisis management, Crisis Management model,

I. INTRODUCTION

As defined by Vasickova (2020), crisis management is the procedure practiced by organizations to deal with unexpected or unforeseen events that pose a significant threat to the organization's activities or to the interests of its stakeholders.

Three factors manifest themselves in a situation that is recognized as a crisis. These include the fact that there is a threat to the organization, there is an element of surprise and there is also little space for the management to be able to plan and make relevant decisions.

Hamidovic (2012), theorizes that "crisis is a process of transformation where the old system can no longer be maintained".

II. BACKGROUND OF THE STUDY

According to Weddikara & Devapriya (2019), the construction industry is considered as an important industry which is affecting the overall health of the economy of the nation or a country. When the demand for construction is increasing it represents many other connected industries will also at the same time grow at the same speed and growth rate. Hence the construction industry is important

for the success of many other industries as well. The construction industry does not include companies that are performing actual building work for construction projects but rather includes a wider range of services ranging from designing, developing, repairing and maintaining structures. Further, many other services are offered by construction companies as well.

Therefore, as explained by Athapaththu, et al. (2016), the construction sector at large is considered to be one of the large-scale sectors in a country's economy. It is vital that a country carefully evaluates the construction sector and the different factors affecting the construction sector of a country. Consequently, this research focused on the crisis management processes followed in the construction sector out of which the COVID-19 pandemic is one such crisis faced by the sector. The COVID-19 pandemic has impacted the construction sector and its activities by a greater percentage, especially as construction projects have now faced challenges in continuing their operations. On the other hand, the health and safety of those employed in the construction sector is also identified to be at risk due to the crises faced by the sector.

In the meantime, many construction project owners have also faced many challenges in continuing the construction activities of their projects. Research and monitoring institutions focusing on the construction sector have reported numerous challenges encountered by construction companies in today's context. Therefore, in order to understand how a crisis management framework could support a sector, this research is conducted. Accordingly, the construction sector being the core of this research is hence considered as the main component of this research.

Due to this reason, the need for having a robust crisis management model for the construction sector is identified. Such crisis management model could be used by organizations or projects in such events that they face a crisis.

III. LITERATURE REVIEW

A. Crisis Management

When an organization and its stakeholders identify a threat, they activate crisis management procedures to ensure an efficient response and effectively manage or reduce the impact of the threat.

According to Durdyev & Ismail (2012), the volatile economic, social and political environment in the global scenario makes it difficult to predict events and their resultant impact. In order to be better prepared for such eventualities, modern organizations attempt to identify potential crises before they occur in order to develop and map out strategies

to deal with them. This provides such organizations with a better chance of survival if such a crisis occurs.

According to Niroshana, et al., (2022), the COVID-19 pandemic that emerged in early 2020 serves as a global example of such a crisis. Businesses that were ill-prepared faced closures, resulting in millions of employees losing their livelihoods. Essential services struggled to operate amid increasing uncertainty. The pandemic had a devastating impact on global economies, with developing nations experiencing the worst consequences.

In addition, as Sahin et al. (2015) explain, crises can manifest in various forms, including office fires, the death of a CEO, terrorist attacks, data breaches, or natural disasters. These events can lead to both tangible and intangible losses for companies, such as reduced revenue, reputational damage, and decreased profits.

As stated in a study by Srinivasan & Nandhini (2017), it must be noted that a crisis need not be always caused by external developments. There are many recorded incidents where crisis has been self-inflicted. While examples of external forces include natural disasters, civil unrest, or false rumors that hurt a business's reputation, self-inflicted crisis are mismanagement, embezzlement, fires or explosions caused through negligence, mismanagement of EDP (Electronic Data Processing) systems, as well as continued poor customer service which gets social media coverage. Effective management, mitigation, or prevention of an internal crisis can be achieved through the enforcement of strict compliance with corporate guidelines and protocols concerning ethics, policies, rules, and regulations among employees.

B. Crisis emergence

Emergence of a crisis as explained by Haguigan (2022), is related to the process and steps followed when a crisis affects an organization, a project or an operation. Figure 1, which represents the timeline of events during a crisis is an example of the steps followed during a crisis. From the initial trigger of a crisis to the point where it reaches a critical juncture, the severity of the consequences tends to escalate. However, beyond this inflection point, the severity of the crisis can either continue to increase or decline depending on the mitigation actions taken by the organization, or the parties involved.

Therefore, it is vital that all parties involved in an organization, a project or an operation must be well aware of the stages of a crisis based on the timeline of events as shown in Figure 1.

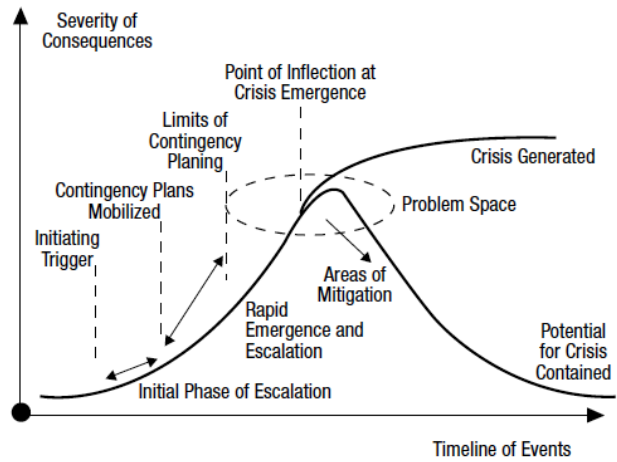


Figure 1: Crisis emergence procedure

Source: (Yap, 2009)

C. Types of crises faced by the Construction Sector in Sri Lanka

According to Nineline (2021), the construction industry in Sri Lanka, which has played a significant role in the country's economic growth and employment generation, has faced significant challenges in the aftermath of the COVID-19 pandemic. The pandemic had a negative impact on all sectors in Sri Lanka, leading to health concerns, travel restrictions, workplace closures, and lockdowns. The construction industry was particularly affected and experienced its own crisis.

As highlighted by Atukorala (2021), construction businesses in Sri Lanka are facing a financial crisis due to the government's failure to settle approximately LKR 150 billion (US\$416.7 million) in payments for completed work. The combination of two years of money printing and a devaluation of the country's currency has resulted in a severe economic downturn. The Central Bank of Sri Lanka recently reported a 64% year-on-year increase in inflation in August 2022. As a consequence, the government lacks the funds needed to pay contractors their outstanding dues.

Khan, et al. (2021), states that due to the Easter tragedy in April 2019, the industry was already being adversely affected in the short term with cash flow issues which had resulted in payments to workers being delayed owing to nonpayment to contractors and consultants for ongoing projects.

Ban on building material imports as a temporary measure to preserve foreign exchange reserves have resulted in severe shortages of material in the market with resultant price escalations making construction costs exorbitant which has adversely impacted on demand. For example, with over 70 percent of depreciation in the rupee currency since March 2021, the cement prices have risen to nearly Rs 3,000 from Rs 850 rupees during the Covid-19 pandemic according to industry stakeholders.

Further, Tudor & Cristina (2022), states that apart from material cost escalations, the fuel and electricity crisis is also directly and indirectly impacting industry. Industry Officials say that due to the fuel crisis there will be an adverse impact on availability of backhoes and excavators which will be in short supply, and this will also affect jobs of such machinery operators.

According to Skordoulis, et al. (2022), due to inappropriate tax reductions the state revenues have dropped significantly, and the NCASL (National Construction Association of Sri Lanka)

says that work on many highways, road and other infrastructure projects has stopped as the Sri Lankan Government cannot afford to complete them due to the shortfall in state revenue. According to the association, up to 70% of state projects are on hold.

On top of these issues, the industry has been finding considerable difficulty in construction continuity of ongoing sites due to lack of staff and workers as a result of health concerns, lockdowns and migration.

As stated by Parameswaran & Ranadewa (2022), the industry also has faced problems in supervision and security maintenance due to the above stated human resource constraints. “Due to several factors causing a debilitating impact, over 100,000 jobs will be lost within the ensuing 3 months, unless immediate remedial action is taken.”

D. Components of a Crisis management model

Operational management

As explained by Smith (2020), it is not feasible for one person to handle operational crisis management alone. While one individual may be responsible for overseeing the entire plan, it necessitates collaboration with other departments. These departments are responsible for ensuring the safety of their personnel, shutting down and restarting systems, and swiftly restoring order once the crisis has subsided.

Further, Mustafa (2015), states that the operations managers have the duty of providing input on operational and emergency preparedness. This entails evaluating proposals and associated budgets, identifying operational risks, and gathering information to support decision-making at every stage of the process. Accordingly, the below section presents a literature review of components identified in previous research studies.

Strategic management

Groh (2014), states that to effectively address strategic crisis management, an organization or project must assess internal and external threats and vulnerabilities. This analysis forms the basis for developing a strategy, implementing it, and continuously updating it as circumstances change. Crucial aspects of crisis management strategies involve maintaining transparent communication channels and nurturing significant relationships.

According to Ping, et al. (2011), strategic management encompasses five essential tasks. Firstly, it involves creating a strategic vision and mission that guides the organization or project. Secondly, objectives are established to outline what needs to be accomplished. Thirdly, tactics are crafted to attain these objectives. The fourth task entails implementing and executing the tactics effectively. Lastly, performance is evaluated and measured to gauge the effectiveness of the implemented strategy.

Surveillance and monitoring

A study by Boersma, et al. (2022), states that crisis surveillance and monitoring play a crucial role in effective crisis management, as they allow organizations to identify and address potential crises before they escalate. By closely monitoring the situation, the project team gains valuable insights into the magnitude of the issue, the sentiment surrounding it, and the key influencers and stakeholders

involved in the crisis or discussion. Conducting an analysis of the crisis helps in making informed decisions, enabling the organization to mitigate or even prevent damage to its reputation.

Control and prevention

According to Stefan (2017), the objectives of the preparation and prevention stage in crisis management are twofold: firstly, to ensure readiness and readiness of others for a possible crisis, and secondly, to create and execute contingency plans for crisis response. The actions taken in advance to address and mitigate potential crises are commonly known as control and prevention measures. In some cases, this is also referred to as mitigation. Crisis control involves the steps taken by an organization to handle an unforeseen event that poses a threat to the organization itself or its stakeholders.

Coordination and Communication

Buganová, et al. (2013), states that the Crisis Management Coordination process operates continuously, monitoring ongoing developments. It should have the capability to promptly issue alerts, generate comprehensive status reports, and provide an overview of the collective impact of all individual events on society.

According to Chehou (2018), the primary objective of any workplace crisis communication strategy is to facilitate smooth and uninterrupted communication within an organization during a crisis. The messages conveyed in crisis communication aim to equip employees with the necessary information to make appropriate decisions in times of crisis and emergencies.

IV. RESEARCH METHODOLOGY

A. Research Design

Due to the nature of this research, it can be identified that this research is following a positivist research philosophy and the research approach is deductive. The main reason for this is that the researcher has collected data through a questionnaire survey to test the conceptual framework that was developed through the literature review.

This research is considered as longitudinal research due to the fact that the researcher has further extended the research to developing a crisis management model for the construction sector in Sri Lanka and this paper is the initial steps taken for this main reason.

B. Conceptual framework

The conceptual framework of this study is represented by Figure 2.

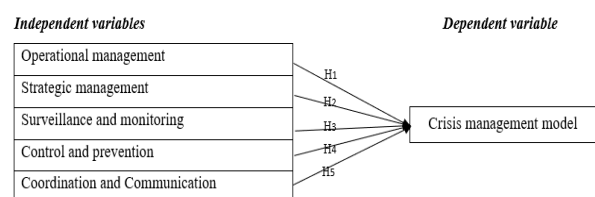


Figure 2: Conceptual Framework

C. Hypotheses

(H1)₀: Operational management is not a component of the Crisis management model.

(H1)₁: Operational management is a component of the Crisis management model.

(H2)₀: Strategic management is not a component of the Crisis management model.

(H2)₁: Strategic management is a component of the Crisis management model.

(H3)₀: Surveillance and monitoring is not a component of the Crisis management model.

(H3)₁: Surveillance and monitoring is a component of the Crisis management model.

(H4)₀: Control and prevention is not a component of the Crisis management model.

(H4)₁: Control and prevention is a component of the Crisis management model.

(H5)₀: Coordination and Communication is not a component of the Crisis management model.

(H5)₁: Coordination and Communication is a component of the Crisis management model.

D. Data Collection and Analysis

The research employed a quantitative data collection strategy, with the primary data gathered through the use of a questionnaire. The collected data was then analyzed using SPSS version 26, a statistical software commonly used in social sciences. This chapter provides a summary of the research findings regarding the identified concerns and presents the overall conclusion of the study.

E. Research Population and Sample

There is approximately 600,000 industry professionals in the construction sector in Sri Lanka (International Trade Administration, 2022). Therefore, the population of the study includes these industry professionals.

A judgmental sampling technique is used to select the sample from the population of the study. Accordingly, a total of 400 respondents were selected out of these industry professionals.

V. DATA ANALYSIS

The data analysis was used following “value labels” given in the Table 1 to represent responders’ selections in SPSS Data View plane.

Table 1: Definitions given to five-point Likert scale.

Value	Label
1	Strongly Disagree
2	Disagree
3	Neutral
4	Agree
5	Strongly Agree

A. Demographic data analysis

The statistics of the demographics of the research participants are represented by Table 2.

Table 2: Statistics of demographics of participants

		1. Gender	2. Age	3. How long have you been working in the construction industry?	4. Type of the organization	5. For whom have you are currently working for?
N	Valid	383	383	383	383	383
	Missing	0	0	0	0	0

The sample size was 400, and the researcher was able to collect data from 383 respondents. All of the acquired data originated valid responses, and no information was left out.

Age

The age of the respondents is shown in Figure 4 and majority were age range of 35 to 44 years.

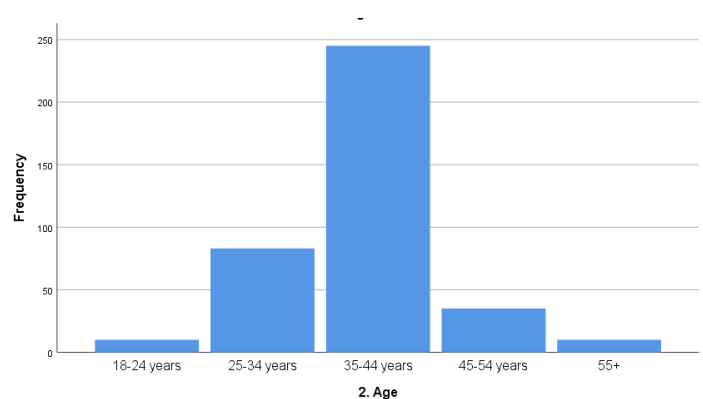


Figure 3: Age of the respondents

Experience of respondents

The respondent’s job experience in the construction industry is shown in the Figure above, with approximately 75% having 5 - 10 years of experience. Some of the designations of the respondents included Engineering Manager, Project Manager, Site Engineer, General Manager and Chief Quantity Surveyor.

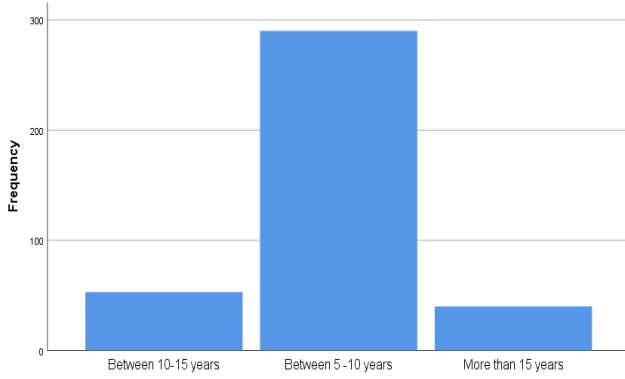


Figure 4: Experience of respondents

Type of organization

Figure 6 shows the type of organization which the respondents are attached to in the construction sector and majority of the respondents were working in private sector organizations.

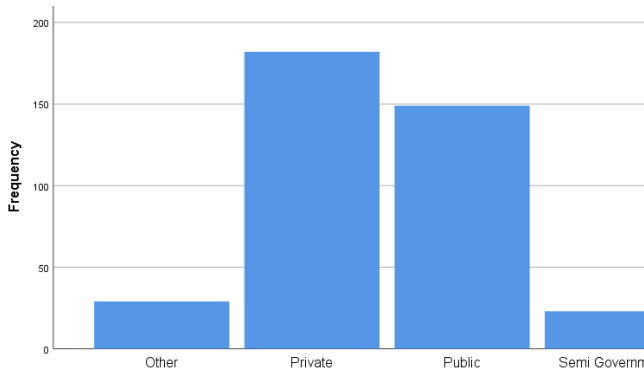


Figure 5: Type of the organization

Role of the respondents

According to the data that was received (shown in Figure 7) it was identified that most of the respondents were working for the contractors in the construction sector.

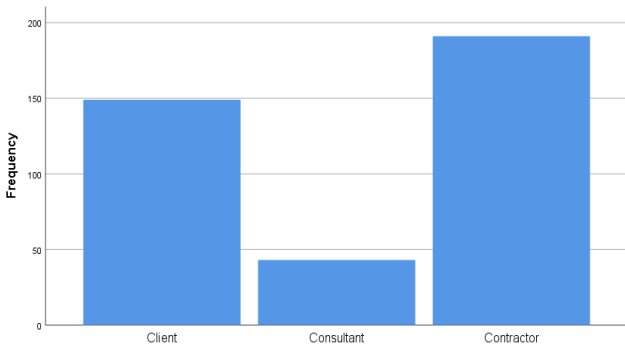


Figure 6: Whom the respondent is currently working for

Incomplete caption

Types of crises the respondents have experienced when working in the Construction sector in Sri Lanka

According to Figure 8 it can be identified that the respondents have explained many crises in the construction sector which includes the COVID-19 pandemic, the economic crisis as well as the Easter attack in 2019.

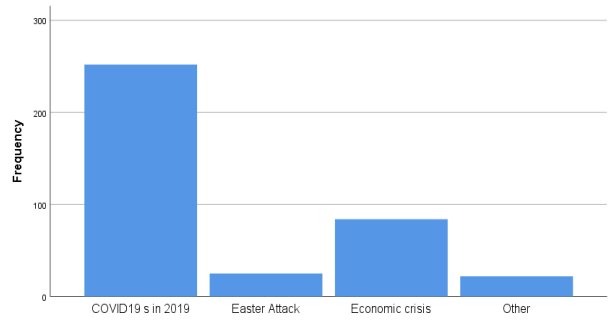


Figure 7: Types of crises the respondents have experienced when working in the Construction sector in Sri Lanka

B. Coefficient of Reliability
Reliability Statistic for overall Research Instrument

Table 3: Cronbach's Alpha for Total Questionnaire

Reliability Statistics

Cronbach's Alpha	N of Items
.712	28

Based on the information provided, the overall Cronbach's alpha value for the research instrument, including all elements, is 0.712. Since Cronbach's alpha is greater than 0.7, it indicates that the index is considered valid and acceptable. Therefore, it can be concluded that the instrument demonstrates a high level of reliability.

Reliability Statistic of 1st independent variable – Operational management

Table 4: Cronbach's Alpha for Operational management

Reliability Statistics

Cronbach's Alpha	N of Items
.722	5

Based on the information provided, the Cronbach's Alpha for the Operational management variable, which includes all its elements, is 0.7. Since Cronbach's Alpha is greater than 0.7, the index is considered valid and acceptable in terms of reliability. Therefore, it can be concluded that the instrument demonstrates a high level of reliability for measuring the Operational management variable.

Reliability Statistic of 2nd independent variable – Strategic management

Table 5: Cronbach's Alpha for Strategic management

Reliability Statistics

Cronbach's Alpha	N of Items
.798	4

Based on the information provided, Cronbach's Alpha for the Strategic management variable, including all its elements, is 0.798. Since Cronbach's Alpha is greater than 0.7, the index is considered valid and acceptable in terms of reliability. Therefore, it can be concluded that the instrument demonstrates a high level of reliability for measuring the Strategic management variable.

Reliability Statistic of 3rd independent variable – Surveillance and monitoring

Table 6: Cronbach's Alpha for Surveillance and monitoring

Reliability Statistics	
Cronbach's Alpha	N of Items
.815	4

According to Table 6 Cronbach's Alpha for Surveillance and monitoring, which includes all its elements, is .815. As the Cronbach's alpha is more than 0.7, the index is regarded as being quite valid and acceptable. Thus, it may be said that the instrument's reliability is highly accepted.

Reliability Statistic of 4th independent variable – Control and prevention

Table 7: Cronbach's Alpha for Control and prevention

Reliability Statistics	
Cronbach's Alpha	N of Items
.917	5

According to the Table 7, Cronbach's Alpha for Control and prevention, which includes all elements, is .917. As the Cronbach's alpha is more than 0.7, the index is regarded as being quite valid and is acceptable. Thus, it may be said that the instrument's reliability is highly accepted.

Reliability Statistic of 5th independent variable – Coordination and Communication

Table 8: Cronbach's Alpha for Coordination and Communication

Reliability Statistics	
Cronbach's Alpha	N of Items
.734	5

Based on the information provided, the Cronbach's Alpha for the Coordination and Communication variable, including all its elements, is 0.734. Since Cronbach's Alpha is greater than 0.7, the index is considered valid and acceptable in terms of reliability. Therefore, it can be concluded that the instrument

demonstrates a high level of reliability for measuring the Coordination and Communication variable.

C. Descriptive analysis

The distribution of the Likert scale and its explanation are shown in Table 9.

Table 9: Likert scale distribution

Agreement level of the respondents	Range	Nature of the Perception
Strongly disagree	1.00 – 1.80	Low Impact
Disagree	1.81 – 2.60	Low Impact
Neither agree nor disagree	2.61 – 3.40	Neutral (doubtful)
Agree	3.41 – 4.20	High Impact
Strongly agree	4.21 – 5.00	High Impact

Table 10: Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Q7	383	3	5	3.49	.587
Q8	383	3	5	3.56	.623
Q9	383	3	5	3.97	.779
Q10	383	3	5	3.72	.508
Q11	383	3	5	4.09	.812
Q14	383	3	5	3.80	.507
Q15	383	2	5	3.76	.721
Q16	383	2	5	3.96	.821
Q17	383	3	5	3.59	.699
Q20	383	2	5	4.02	.787
Q21	383	3	5	3.52	.755
Q22	383	3	5	3.63	.649
Q23	383	3	5	3.91	.825
Q25	383	3	5	3.51	.643
Q26	383	3	5	3.48	.596
Q27	383	3	5	3.48	.591
Q28	383	3	5	3.60	.706
Q29	383	3	5	3.48	.600
Q31	383	3	5	3.59	.585
Q32	383	3	5	3.61	.654
Q33	383	3	5	3.45	.598
Q34	383	3	5	4.09	.496
Q35	383	3	5	3.80	.555
Q37	383	2	5	3.90	.740
Q38	383	2	5	3.67	.931
Q39	383	2	5	3.52	.849
Q40	383	2	5	3.79	.840
Q41	383	2	5	3.87	1.253

Valid (listwise)	N	383				
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Table 10 shows the mean value and all mean values are more than 3.41 and, which is within the high impact range. Therefore, it can be identified that the components of the crisis management model which is identified in this research can be considered as the acceptable components of the crisis management model.

D. Correlation analysis

The study utilized Pearson correlation to assess the strength and linear relationship between two variables. The correlation coefficient ranges from -1 to +1, where -1 indicates a perfect negative correlation, +1 indicates a perfect positive correlation, and 0 indicates no correlation between the variables. A correlation coefficient of 1 suggests a perfect positive relationship. Additionally, a correlation coefficient of 0.3 indicates a medium correlation, while 0.5 reflects a large correlation.

Table 11 represents the Correlation between operational management and crisis management model.

Table 11: Correlation of what??

Caption?

		Operational management	Crisis Management model
Operational management	Pearson Correlation	1	.512**
	Sig. (2-tailed)		.000
	N	383	383
Crisis Management Model	Pearson Correlation	.512**	1
	Sig. (2-tailed)	.000	
	N	383	383

Correlation is significant at the 0.01 level (2-tailed).

The correlation between the Operational management and crisis management model is 0.512 and this means that both variables have positive relationship, and it is a large correlation.

Table 12 represents the Correlation between strategic management and crisis management model.

Table 12: Correlations of between strategic management and crisis management model

		Strategic Management	Crisis Management Model
Strategic Management	Pearson Correlation	1	.733
	Sig. (2-tailed)		.000
	N	383	383
Crisis Management Model	Pearson Correlation	.733	1
	Sig. (2-tailed)	.000	
	N	383	383

The correlation between the strategic management and crisis management model is 0.733 and this mean that both variables have positive relationship, and it is a large correlation.

Table 13 represents the Correlation between surveillance and monitoring and crisis management model.

Table 13: Correlations between surveillance and monitoring and crisis management model

		Surveillance and monitoring,	Crisis Management Model
Surveillance and monitoring,	Pearson Correlation	1	.658**
	Sig. (2-tailed)		.000
	N	383	383
Crisis Management Model	Pearson Correlation	.658**	1
	Sig. (2-tailed)	.000	
	N	383	383

** Correlation is significant at the 0.01 level (2-tailed).

The correlation between the Surveillance and monitoring and crisis management model is 0.658 and this means that both variables have a positive relationship, and it is a large correlation.

Table 14 represents the Correlation between control and prevention and crisis management model.

Table 14: Correlations between control and prevention and crisis management model

		Control & prevention, n,	Crisis Manage ment Model
Control & prevention,	Pearson Correlation	1	.814
	Sig. (2-tailed)		.000
	N	383	383
Crisis Management Model	Pearson Correlation	.814	1
	Sig. (2-tailed)	.000	
	N	383	383

Based on the correlation coefficient of 0.814 between the Control & prevention and crisis management model variables, it indicates a positive relationship between the two variables. Moreover, with a correlation coefficient of 0.814, it can be concluded that there is a large correlation between these variables.

Table 15 represents the Correlation between coordination and communication and crisis management model.

Table 15: Correlations between coordination and communication and crisis management model

		Coordina tion & communi cation	Crisis Manage ment Model
Coordination & communication	Pearson Correlation	1	.817*
	Sig. (2-tailed)		.000
	N	383	383
Crisis Management Model	Pearson Correlation	.817*	1
	Sig. (2-tailed)	.000	
	N	383	383

*. Correlation is significant at the 0.05 level (2-tailed).

The correlation between the Coordination & communication and crisis management model is 0.817 and this means that both variables have a positive relationship, and it is a large

correlation.

In summary all five independent variables along with the dependent variable have a strong positive relationship.

E. Hypotheses testing

The five hypotheses of this research are listed in the previous section.

According to the findings, researcher can accept all alternative hypothesis and we can reject all null hypothesis.

H11: Operational management is a component of the Crisis management model.

H21: Strategic management is a component of the Crisis management model.

H31: Surveillance and monitoring are a component of the Crisis management model.

H41: Control and prevention are a component of the Crisis management model.

H51: Coordination and Communication is a component of the Crisis management model.

VI. DISCUSSION

In this research study, the researcher mainly asked closed-ended questions from the respondents of the study. However, a few open-ended questions too were included in the questionnaire to be able to obtain qualitative information from the research participants. Accordingly, some of the key aspects that were identified by the researcher from these open-ended questions are discussed in this section.

When considering operations management as a component of the crisis management model it was stated by the research participants that in operations management during a crisis the initial damage must be assessed and that it helps in restoring systems and processes back to normal. Further, it was also noted that it is important that operational management is carefully considered during crisis management. During a crisis management process many management processes are involved that are related to operations management. Finally, it can be stated that operational mgt makes it possible to maintain control over the crisis situation.

Furthermore, when evaluating upon some of the qualitative information that were highlighted during the questionnaire survey which was related to strategic management included that it is important to analyze the internal and external environment of the organization or project during its operations. Planning and monitoring were identified as important components of strategic management when considering crisis management. Finally, it was also noted that proper strategic mgt processes need to be followed and that resource management is carefully considered in crisis management.

Further to the above, when considering surveillance and monitoring as a component of the crisis management model, it was highlighted by the industry experts that it should be considered as an important component in crisis management. It was also stated that clarity on the situation is necessary when monitoring the crisis situation. Further, crisis resolution is part of surveillance and monitoring and is one of the important aspects in crisis management. When reliable information gathering is done, the crisis management process becomes

effective. It was highlighted that many organizations in Sri Lanka, fail to follow this process hence have not been able to successfully manage different crises. Organizations that have a robust surveillance and monitoring system help achieve the crisis management goals of the organization as proper surveillance and monitoring supports the organizations.

The next important component of the crisis management model was control and prevention. It was identified that a considerable amount of time is required for controlling and prevention within an organization or a project. An effective crisis management plan needs to be followed within an organization as it helps in identifying the possible risks to the organization / project. Further, it was also noted that this proves is a constant process of practice management as it makes it possible for the organization to manage a risk before it happens. Another key aspect that was highlighted was that team effort is needed for control and prevention in crisis management.

Some of the key aspects that were highlighted on the final component which was coordination and control were related to the importance of communicating the outcomes of the decisions made by the management of the organization / project during a crisis, to all stakeholders clearly. It is important to highlight proper coordination during a crisis will ensure that the crisis is faced by the organization / project in the most effective way possible. Finally, it is necessary to have proper controls over the crisis management decisions and procedures that have been implemented.

VII. CONCLUSION

The construction sector is one of the leading and diversified sectors in the country that is contributing towards the economic growth of the country. However, in the recent past, the construction sector has faced many challenges due to different types of crises and this has resulted in many construction companies being unable to continue their projects in the most effective way possible. Therefore, the need for a crisis management model for the construction sector is identified. In this research, the researcher conducted a literature review with the goal of understanding what components are to be considered when developing a crisis management model.

Thereafter, the hypotheses were built, and these hypotheses were tested by collecting quantitative data through a closed ended questionnaire. The questionnaire that was distributed among the industry experts included closed ended questions that were used to collect data related to the components of the crisis management model which was previously identified. The data analysis was done by using the SPSS software which is a commonly used statistical data analysis tool. The outcomes of the data analysis were represented in this paper and five main components namely Operational management, Strategic management, Surveillance and monitoring, Control and prevention and Coordination and Communication were identified as the components for consideration when developing a crisis management model. Finally, the researcher has provided an understanding on the future research that is followed after completing the said research.

VIII. FUTURE RESEARCH

Based on this research the researcher hopes to further develop a crisis management model based on the components that have been identified in this research. The research is longitudinal research, and the next stage of this research is to

conduct interviews with industry experts and thereby develop the crisis management model for the construction sector. Finally, the developed crisis management model will be applied to case study examples which shall include crises faced by different industries in the past.

REFERENCES

- Atukorala, C., 2021. Construction Economics In Sri Lanka. *Academia*, 1(2), pp. 1 - 6.
- Boersma, K., Büscher, M. & Fonio, C., 2022. Crisis management, surveillance, and digital ethics in the COVID-19 era. *Journal of Contingencies and Crisis Management*, 30(1), pp. 1 - 5.
- Buganová, K., Luskova, M. & Hudáková, M., 2013. Early Warning Systems in Crisis Management. *University of Žilina*, 2(1), pp. 1 - 4.
- Chehou, O., 2018. Crisis communication and management. *Academia*, 1(2), pp. 1 - 7.
- Durdyev, S. & Ismail, S., 2012. Role of the construction industry in economic development of Turkmenistan. *Ara Institute of Canterbury*, 1(2), pp. 1 - 7.
- Groh, M., 2014. Strategic Management in Times of Crisis.. *American Journal of Economics and Business Administration*, 6(2), pp. 49 - 57.
- Haguingan, M. L., 2022. The Emergence of Crisis: A Catalyst to Start-up a Business for Entrepreneurs using Paradigm Shift. *The Emergence of Crisis: A Catalyst to Start-up a Business for Entrepreneurs Using Paradigm*, 1(1), pp. 1 - 6.
- Hamidovic, H., 2012. An Introduction to Crisis Management. *Independent Researcher - Information Security*, 1(2), pp. 1 - 7.
- Internatioanl Trade Administration, 2022. *Sri Lanka - Country Commercial Guide*. [Online] Available at: <https://www.trade.gov/country-commercial-guides/sri-lanka-construction> [Accessed 15 June 2023].
- Khan, Z., Ghauri, M. J. & Alam, R., 2021. Exploring the 'Civil Repair' Role of Media: A Case Study of the Easter Bombings in Sri Lanka. *Pakistan Social Sciences Review*, 5(4), pp. 531 - 546.
- Mustafa, L., 2015. Role and importance of management in crisis situation in the enterprise. *University for Business and Technology - U*, 1(2), pp. 1 - 6.
- Nineline, 2021. Construction Sector in Sri Lanka. *Academia*, 1(1), pp. 1 - 7.
- Niroshana, N., Siriwardana, C. & Jayasekara, R., 2022. The impact of COVID-19 on the construction industry and lessons learned: a case of Sri Lanka. *International Journal of Construction Management*, 1(2), pp. 1 - 16.
- Parameswaran, A. & Ranadewa, K., 2022. Construction Industry on the Brink: The COVID-19 Impact. *Proceedings of the 10th World Construction Symposium*, 1(1), pp. 220 - 235.
- Pheng, L. S. & Hou, L. S., 2019. The Economy and the Construction Industry: A Study at the Firm Level. *Construction Quality and the Economy*, 1(1), pp. 21 - 54.
- Ping, J. W., Cui, T. & Pan, S. L., 2011. Strategies Of Crisis Management From Contingent Perspective.. *Pacific Asia Conference on Information Systems*, 1(2), pp. 1 - 7.
- Sahin, S., Ulubeyli, S. & Kazaz, A., 2015. Innovative Crisis Management in Construction: Approaches and the Process.

- Procedia - Social and Behavioral Sciences*, 1(1), pp. 1 - 15.
- Skordoulis, M., Sarvanaki, G. & Chalikias, M., 2022. The impact of the economic crisis on the construction sector in Greece. *9th eRA International Scientific Conference (eRA-9)*, 1(1), pp. 1 - 7.
- Smith, D. F., 2020. Crisis Management Teams: Issues in the Management of Operational Crises. *Risk Management*, 2(3), pp. 61 - 78.
- Srinivasan , N. P. & Nandhini, N., 2017. A Study on Crisis Management in Construction Projects. *International Journal of Latest Research in Science and Technology*, 4(10), pp. 9965 - 9967.
- Stefan , P., 2017. Prevention and Crisis Management. *International conference Knowledge-Based Organiation*, 11(1), pp. 1 - 15.
- Tudor, N. & Cristina, P., 2022. Impact of Economic and Financial Crisis in the Construction Industry. *Management & Marketing*, 8(1), pp. 25 - 36.
- Vasickova, V., 2020. Crisis Management Process - A Literature Review and a Conceptual Integration. *Acta Oeconomica Pragensia*, 27(3), pp. 61 - 77.
- Weddikara, C. & Devapriya, K., 2019. The Sri-Lankan Construction Industry in the New Millennium. *University of Western Sydney, Australia*, 1(1), pp. 1 - 10.
- Yap, K. W., 2009. *Managing ahead of Crises: Rising towards a Model of Adaptability*. s.l., SCARR Conference.