

PREFACE

Alhamdulillah rabbil ‘ālamīn. All praise is due to Allah, the Lord of all worlds. I am grateful for the strength, patience, and clarity that He has granted me throughout the completion of this thesis. Without His guidance and mercy, this work would not have been possible.

This thesis presents the result of both academic inquiry and personal growth. The research began with a central question. How can a proportionate Security Operations Center (SOC) model be designed to suit the structural and resource constraints commonly found in government institutions?

During the development process, I often experienced doubt. The validity of the model, the structure of the modules, and the suitability of the methodological choices were questioned. These doubts encouraged me to engage in deeper analysis and to seek validation through literature, expert opinions, and practical demonstration.

This study followed a structured and iterative process. It included a systematic literature review, expert validation with professionals from various government cybersecurity organizations, and a real-world demonstration of the SOC model. The findings from each phase contributed to the refinement of the model from version 0.1 to version 1.0. The resulting framework integrates modular design, tier-based capability, and internationally recognized standards such as MITRE ATT&CK and NIST CSF. These features were not developed from theory alone. They were shaped by direct engagement with practical considerations and operational needs.

This thesis reflects a collective effort. It was shaped by the guidance of the mentors, the contributions of experts, and the critical feedback received during validation. I dedicate this work to cybersecurity professionals in the public sector who continue to protect national systems with limited resources. I hope it also provides value to researchers seeking to design solutions that are both technically sound and administratively feasible.

As I conclude this work, I recognize the persistence required to carry it through. This journey has shown me that consistent effort, even in the presence of doubt, can lead to meaningful outcomes. I am grateful for the process and the lessons it has provided.

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