



Transforming Cyber Risk Management in the Post Covid-19 World

William Makatiani
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CVEQ™ Framework

August 2020



Objectives

- Introduction
- Industry Trends and Insights
- Pre-Covid Cyber Risk Program
- Post- Covid Cyber Risk Program
- Implementing the Post-Covid Cyber Risk Program
- Conclusion

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Introduction

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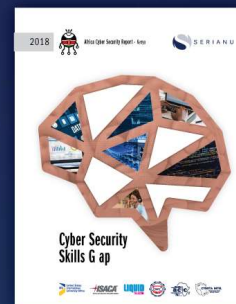


About Serianu

Serianu is a Pan Africa based Cyber Security and business consulting firm. We are an award winning company in the African Cybersecurity sector that helps our customers collect, protect, and analyze critical business information.

Our Partnerships

- AFROSAI-E
- Paladion Networks - Mumbai, India
- Liquid Telecom - Africa
- USIU-Africa – Research and Data Analysis Partner



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Africa Cyber Immersion Centre





Technical Cyber Immersion trainings are delivered at the **Africa Cyber Immersion Centre (ACIC)** in Nairobi, Kenya. ACIC emulates the environments and operations of enterprises using state-of-the-art technologies.

We simulate cyber-attacks in order to test an organisation's inherent vulnerabilities, defense and response capabilities. This facility also replicates an organisation's operating environment and uses the latest range of cyber threats, including an extensive library of viruses and malware, to simulate attacks.

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Industry Trends and Insights

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Trends



- ▶ Analytics and Automation-security operations
- ▶ Business focused metrics- risk statements (appetite, tolerance and threshold)
- ▶ Extending scope of detection and response capabilities
- ▶ Security automation and orchestration
- ▶ Privacy is becoming a major area of focus
- ▶ Embracing of cloud and Software as a Service
- ▶ Intelligence and information sharing
- ▶ Cyber Insurance and Risk Transfer (Outsourcing)
- ▶ Cyber Risk and ERM Integration

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Threat Scenarios




Phishing




Denial of Service




Remote Access Attacks




Third Party Attacks




Malware Distribution



Exploitation of new teleworking infrastructure



Business Email Compromise



Ransomware

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Impact

Impact	Threat Scenario	Affected Industries
Loss of Funds	<ul style="list-style-type: none"> Business Email Compromise Payment Fraud 	<ul style="list-style-type: none"> Banking Retail and Hospitality Legal firms Insurance Manufacturing
Loss of Service	<ul style="list-style-type: none"> Ransomware Denial of Service Employee/ Third Party Errors 	<ul style="list-style-type: none"> Service providers Health care Finance support services Academia
Loss of Data	<ul style="list-style-type: none"> Phishing Data Leakage Vulnerability Exploitation Loss of Devices 	<ul style="list-style-type: none"> Consulting and service firms Financial services Internet service providers All sectors

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Pre-Covid Cyber Risk Program

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Traditional Cyber Risk Management Approach

PRE-COVID CYBER RISK MANAGEMENT PROGRAM

Risks

Threats
↓
Likelihood
↓
Impact

Risk Register

Controls

Implement
↓
Test Effectiveness
↓
Continuous Monitoring

Audit Report

Risk Oriented Programs (Pre Covid)

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Traditional Approaches to Cyber Risk Management – Pre-Covid

- Checklists – Controls, Risks, Audit Program
- Qualitative review – Heat maps and risk ranking
- Compliance based – ISO 27001, NIST, Regulatory guidelines
- Manual – Ad-hoc and paper based
- No Integration between Cyber and ERM-
- Silo Assessments and Technical Reporting

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Challenges with the Pre-Covid Approach to Cyber Risk Management

- Lack of standardized measures
- Lack of Asset information
- Informal Analysis Methods
- Focus on system level vs business level - credit risk, market risk, **Cyber risk??**
- Increasing system and Ecosystem Complexity - Cloud and 3rd parties

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Post-Covid Cyber Risk Program

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Emerging Approaches to Cyber Risk Management

Organizations need to:

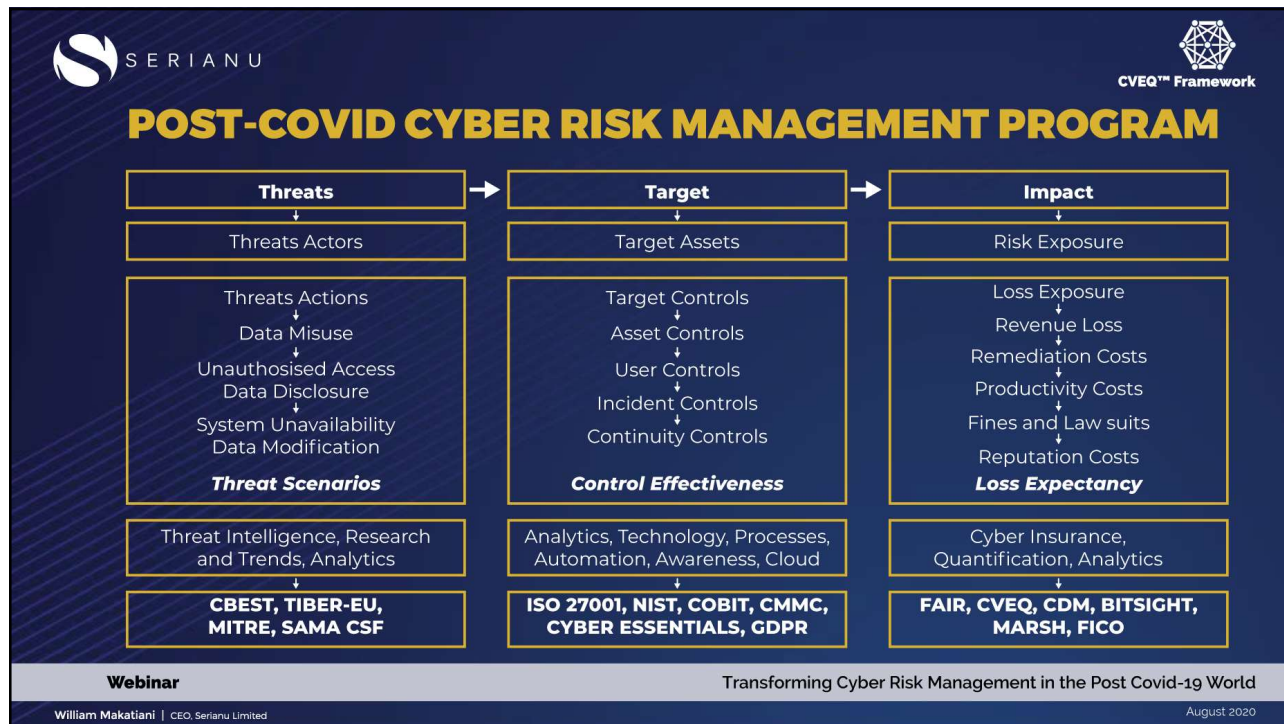
- Move Cyber risk management to the same level as other areas of risk, not just **an IT issue**.
- Understand the **legal implications** of cyber risks as they relate to their **company's specific circumstances**.
- Have adequate **access to cybersecurity expertise**, and discussions about cyber risk management should be given **regular and adequate time** on board meeting agendas.
- Set the **expectation and establish** an enterprise wide cyber risk management framework with **adequate staffing and budget**.
- Ensure Board management discuss **cyber risk management options** including strategies to avoid, accept, **transfer or mitigate cyber risk**. This should include specific plans for each option.

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Acronyms and Definitions

- CBEST - The Council for Registered Ethical Security Testers – UK Based
- TIBER-EU - Threat Intelligence-based Ethical Red Teaming (TIBER-EU)- European Union
- MITRE ATT&CK® - Cyber Offensive Tactics and Techniques – US based
- MITRE SHIELD – Cyber Defensive Tactics and Techniques – US based
- SAMA CSF – Saudi Arabian Monetary Authority Cybersecurity Framework- Saudi Arabia
- ISO 27001- international Organization For Standardization- Global
- NIST – National Institute of Standards And Technology – US based
- COBIT –Control Objectives for Information and Related Technology - Global
- CMMC – CyberSecurity Maturity Model Certification- US Government
- GDPR – General Data Protection Regulation - EU
- FAIR – Factor Analysis of Information Risk - US
- CVEQ – Cyber Visibility and Exposure quantification – Kenya/Africa
- CDM – Continuous diagnostic and mitigation – US Military

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Characteristics of a Mature Cyber Risk Program

- Appropriate policies and procedures are clearly defined and documented
- Cost effective security technologies are providing their intended value
- An effective education and awareness program exists
- Personnel roles and responsibilities are properly defined and staffed
- Board of directors are getting the information they need
- A risk register is used to track and report the most important risks
- A clearly defined risk appetite actively drives decision making
- Meaningful metrics are leveraged to manage risk effectively

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Step by Step Approach to developing a Cyber Risk Program

- Strategic shift from “Seeking to attain” to “Reducing Exposure”
- ERM/Business integration of cyber security issues
- Streamline “Cyber risk models” vs “Extensive” cyber security frameworks

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Implementing the Post-Covid Cyber Risk Program (Step by Step Implementation Guidance)

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Step by Step Approach to developing a Cyber Risk Program

Threat Exposure (Prioritized) - CREST, TIBER

- Organizations should prioritize threat exposures or potential techniques that cyber criminals are likely to use to compromise an organization's environment.

Risk Preparedness - ISO, FFIEC

- Organizations should adequately plan and put in place measures that reduce impact of known and unknown threats.

Risk Reduction - ISO, COBIT, NIST, CIS, CMMC

- Organizations should implement controls that effectively and aggregately reduce or minimize the likelihood of a successful cyber attack.

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Step by Step Approach to developing a Cyber Risk Program

Risk Detection – MITRE

- Organizations should effectively monitor cyber threat activity and detect indicators of a potential cyber breach.

➤ Loss Exposure (Quantified) - FAIR, MARS

- Organizations should assess the likelihood of malicious actors exploiting weaknesses resulting in a cyber breach (loss of data, service or money)

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Conclusion

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Embarking on the Cyber Security Transformation Journey

- *Create meaningful measurements to understand risks in our environment*
- *Prioritize and invest in capabilities that address risks*
- *Effectively communicate risks across the business*

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Communicating Cyber Risk in Financial Terms



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Cyber Risk Quantification - Sample Report

THE TOP 5 CYBER RISKS IN FINANCIAL TERMS



Threat Scenario	Risk Exposure	Risk Probability (Annually)	Annual Frequency	Loss Exposure
Actor: Cyber criminal Motivation: Financial Gain Vector: Ransomware	Loss of data and or loss of service	40%	1 event per year	19 Million
Payment System Compromise	Loss of money	50%	2 events per year	15 Million
Phishing and Business Email Compromise	Loss of money	60%	4 events per year	20 Million
Credential Misuse	Loss of data	40%	2 events per year	8 Million
System Upgrade	Loss of availability	30%	1 event per year	1 Million
Vendor Compromise	Loss of data	30%	1 event per year	3 Million

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Embedding Cyber Risk in the ERM Program

RISK DRIVERS FOR MARKET, CREDIT AND CYBER RISK

COMPONENT	MARKET RISK	CREDIT RISK	CYBER RISK
EXPOSURE	Investment Portfolio	Loan Portfolio	Digital assets portfolio; corporate brand & reputation
PROBABILITY	Probability of loss or gain <ul style="list-style-type: none"> Market price volatility 	Probability of default <ul style="list-style-type: none"> Economic conditions Credit ratings 	Probability of breach <ul style="list-style-type: none"> Threat vectors Preventative controls
SEVERITY	Holding period <ul style="list-style-type: none"> Market liquidity of investments 	Loss in the event of default <ul style="list-style-type: none"> Collateral rights Bankruptcy rights 	Loss in the event of breach <ul style="list-style-type: none"> Dwell time Resolution time Detective, mitigation and proactive controls
CORRELATION	Price correlations <ul style="list-style-type: none"> Asset allocation Position concentrations 	Default correlations <ul style="list-style-type: none"> Loan concentrations Country/ industry diversification 	Threat/ control correlations <ul style="list-style-type: none"> Cyber attack patterns Central points of failure: IT infrastructure, supply chain

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