IBM Security

# Information Security Management Models

NEW APPROACHES FOR EFFECTIVE AND EFFICIENT SECURITY MANAGMENT

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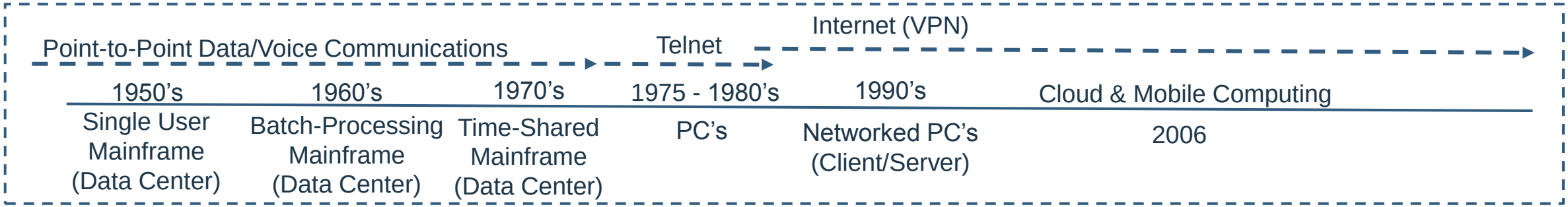
# Companies are transforming the way they manage information and IT risks

- Information security was traditionally only an IT problem and organizations relied on the information technology department personnel for security.
- The introduction of cloud, social, and mobile business solutions are introducing new business threats and risks forcing a higher priority on Information Security roles and responsibilities.
- Financial Services organizations are investing aggressively to transform their Information Security operations.
- All leading Financial Services companies are dedicating an Executive to manage IT risk (physical and technical) for the entire company and related 3rd parties.

# Security Management Transformation Drivers

- Clear understanding of security accountabilities and responsibilities
- Executive level leadership from person that has skills and experience in IT Risk Management
- Segregation of Duties
  - Separate the responsibility for managing risk from building and running the business
- Security Program alignment with Business & IT Objectives and Priorities
- Avoids isolated risk decision making
  - Reduce or eliminate an individual making a risk decision that impacts the company, employees, customers, business partners, etc.

# CISO roles and responsibilities span across the organization and require multi-discipline skills


**These roles and responsibilities can be grouped into five themes**

| Leadership & Oversight | Risk & Compliance | Business engagement | Technology enablement | Delivery & Operations |
|---|---|---|---|---|
| Act as the senior security leader to own the strategy and be accountable for its delivery to the Board | Set policies and targets that align with the business security risk tolerance and measure their effectiveness | Enable the business to operate within the defined security risk tolerances | Help invest in advanced technology to increase security posture | Oversee secure business and IT operations |

*Leadership skills are paramount as security and technical skills wane in importance**

*Source: Evolve To Become The 2018 CISO Or Face Extinction, Forrester, 2014

# It is imperative to define security roles and responsibilities in a documented and approved RACI[1] model

- RACI models clearly delineate the roles of who approves a decision and who is responsible for the process behind the decision.
- Accurate RACI models are critical for international organizations
- The development and approval of a RACI is a critical step in the journey to mature the Security Function.
- Leverage a 3rd party security service provider to facilitate and accelerate the RACI development process.

EXAMPLE

| PROCESS | Board of Directors (BOD) | CEO | CIO (ATEC) | CRO (ACR) | CSO (DSC) | Internal Controls & Compliance (DCIC) | Business Unit Leaders | Legal Department | Internal Audit | IT Department Leaders | Manager Security Governance (SPS) | Manager Security Operations (SSI) | Security Architects | SOC Manager |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **ESTABLISH** | | | | | | | | | | | | | | |
| Establish Security Strategy and Objectives | C | A | C | R | R | I | C | C | I | C | I | I | I | I |
| Establish Information Security Risk Boundaries and Tolerances | C | A | C | R | R | I | C | C | I | I | I | I | I | I |
| Establish the Information Security Culture | C | A | C | C | R | C | R | C | I | C | I | R | I | I |
| Establish criteria to evaluate risk | I | I | C | A | R | R | C | C | I | C | C | C | C | C |
| Identify critical business assests, threats, risks, potential vulnerabilities and impacts. | I | I | I | A | R | R | C | C | I | C | I | I | I | I |
| Indentify options for the treatment of risks | | | C | A | R | R | C | C | I | C | R | R | R | I |
| Establish Responsibility & Ownership for Information Assets | | I | C | R | R | R | A | C | I | C | C | I | I | I |
| Identify and Confirm Information Security Compliance requirements | | I | C | A | R | R | C | R | C | C | C | I | I | I |
| Develop information security policies to support confidentiality, integrity, availability, and accountability | I | I | C | A | R | C | C | C | I | C | R | C | C | C |
| Develop information security standards and guidelines to support confidentiality, integrity, availability, and | | | C | C | A | C | I | C | I | I | R | I | C | I |

[1]RACI (Responsible, Accountable, Consulted, Informed)

# There are three conceptual models for shaping the security organization – Functional, Divisional and Matrix

### *Functional Models*

Functional purpose of each organizational unit (e.g. IT, marketing, sales) are the basis to create functional units

Typically results in a centralized and hierarchical organization models

Suitable for small or homogeneous organizations, or those with little geographical footprint

### *Divisional Models*

Product Lines, Markets, Geography, etc. are the basis to create organizational divisions

Typically results in a federated and hierarchical organization models

Suitable for organizations with wide geographical coverage, disparate product sets or markets

Also suitable following mergers and acquisitions

### *Matrix Models*

Uses a combination of Functional and Divisional models

Typically results in a federated and flat organization models with multiple reporting lines between roles

Suitable for organizations with functions spanning across the organization or shared between divisions

# Functional models are traditional and place the responsibility for security operations within the IT organisation

Security organizations based on a functional model split IT Security and Information Security Governance responsibilities. Cyber security operational responsibilities are within the IT Function

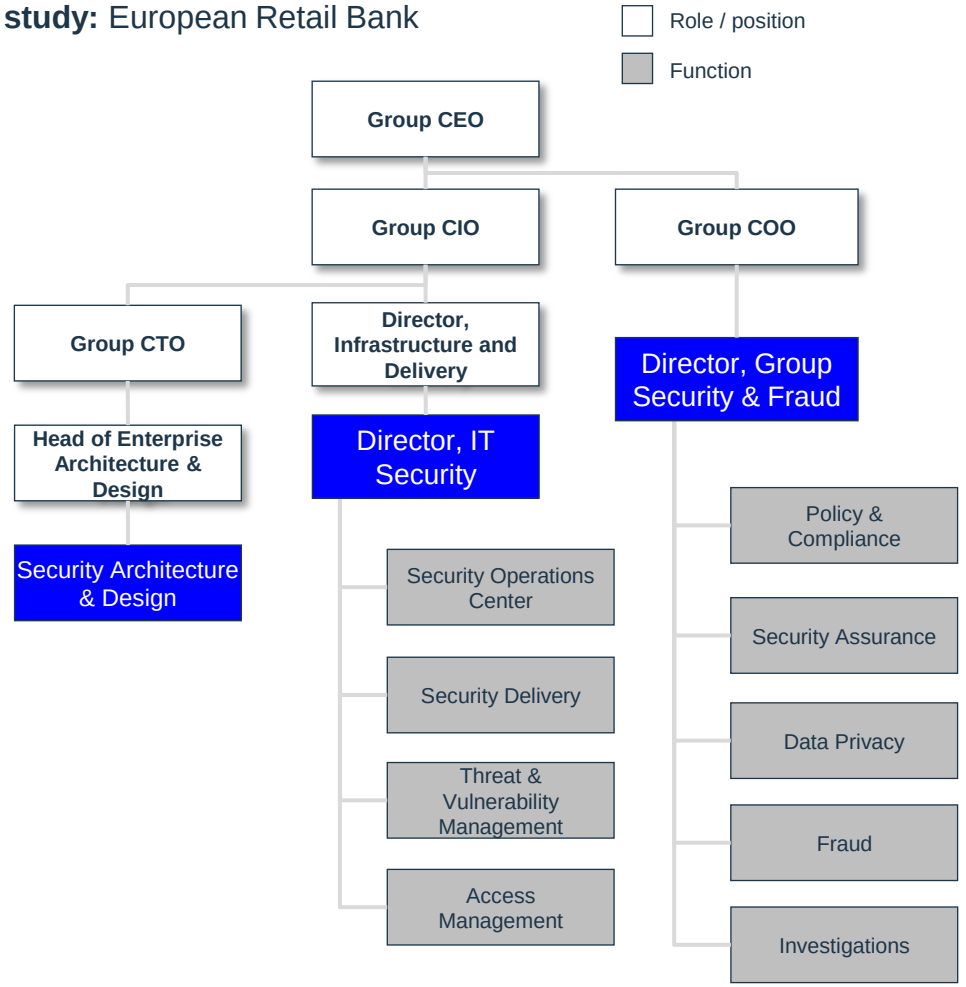
## Pros

- Clear roles and responsibilities for security
- Clear separation of duties between policy definition (governance) and delivery
- IT organization has clear accountability for meeting regulatory security requirements

## Cons

- May result in silo mentality between IT and Business Risk Management
- The IT Security Governance functions are not the priority within the IT organization
- Establishes conflict of interest risk within CIO organization; CIO may make risk decisions independently

**Case study:** European Retail Bank



# Divisional models are suited for organizations with disparate needs across different regions

Security organizations based on a region-based divisional model splits security responsibilities by region. Each region my operate independently with some governance provided from the Group.

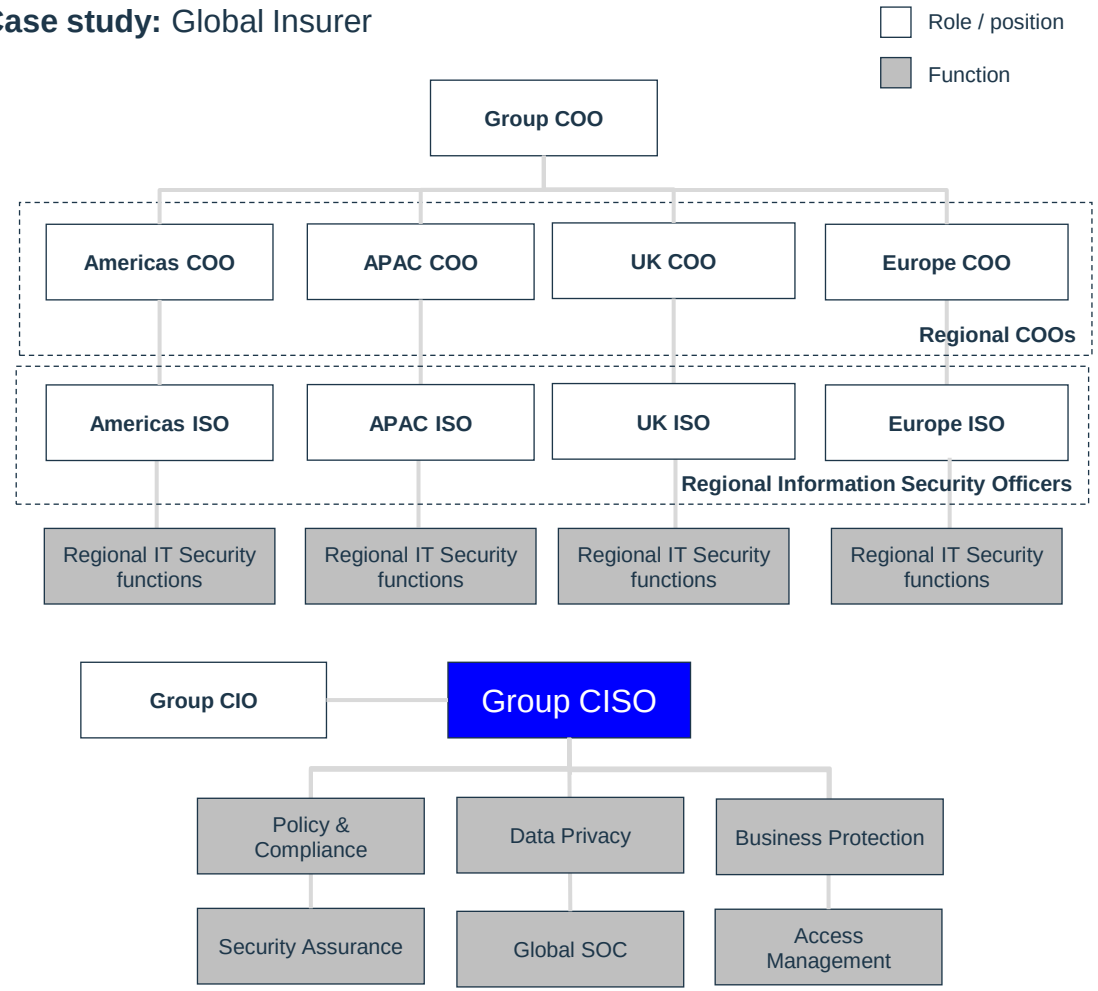
**Pros**

- Tailored approach for each region, e.g. accounting for different regulations
- Local leadership supported by global oversight

**Cons**

- Inconsistent implementation of security
- Potential conflict between the Group and Regions because the Region is held Accountable for security
- Difficult to implement cross-regional capability, e.g. Global SOC
- Establishes conflict of interest risk within CIO organization; CIO may make risk decisions independently

**Case study:** Global Insurer



# Matrix models may enable better alignment with functions but can be complex to govern

Security organizations based on a matrix model operates virtual security teams, which are fragmented across the organization in specialised areas (e.g. Architecture).

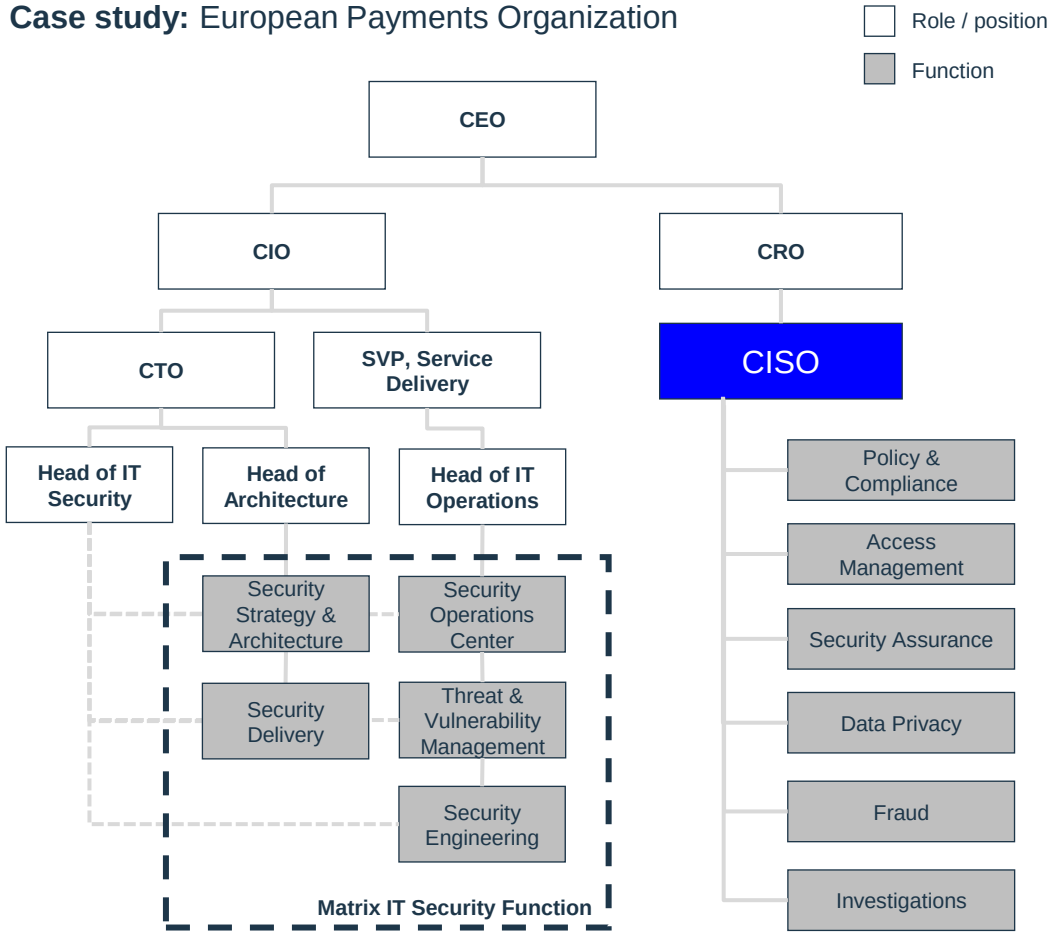
**Pros**

- Specialized security teams (e.g. Security Architecture) benefit from working closely with other teams
- Can be more flexible in bringing together different skills across the organization

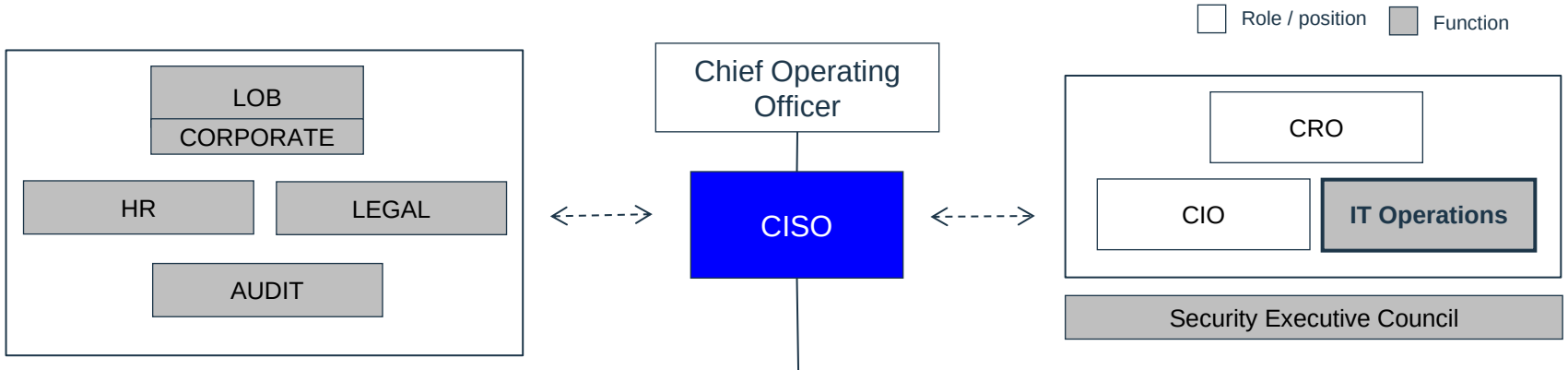
**Cons**

- Complex governance model
- Less clear roles and responsibilities
- Less clear accountability
- Establishes conflict of interest risk within CIO organization; CIO may make risk decisions independently

**Case study:** European Payments Organization

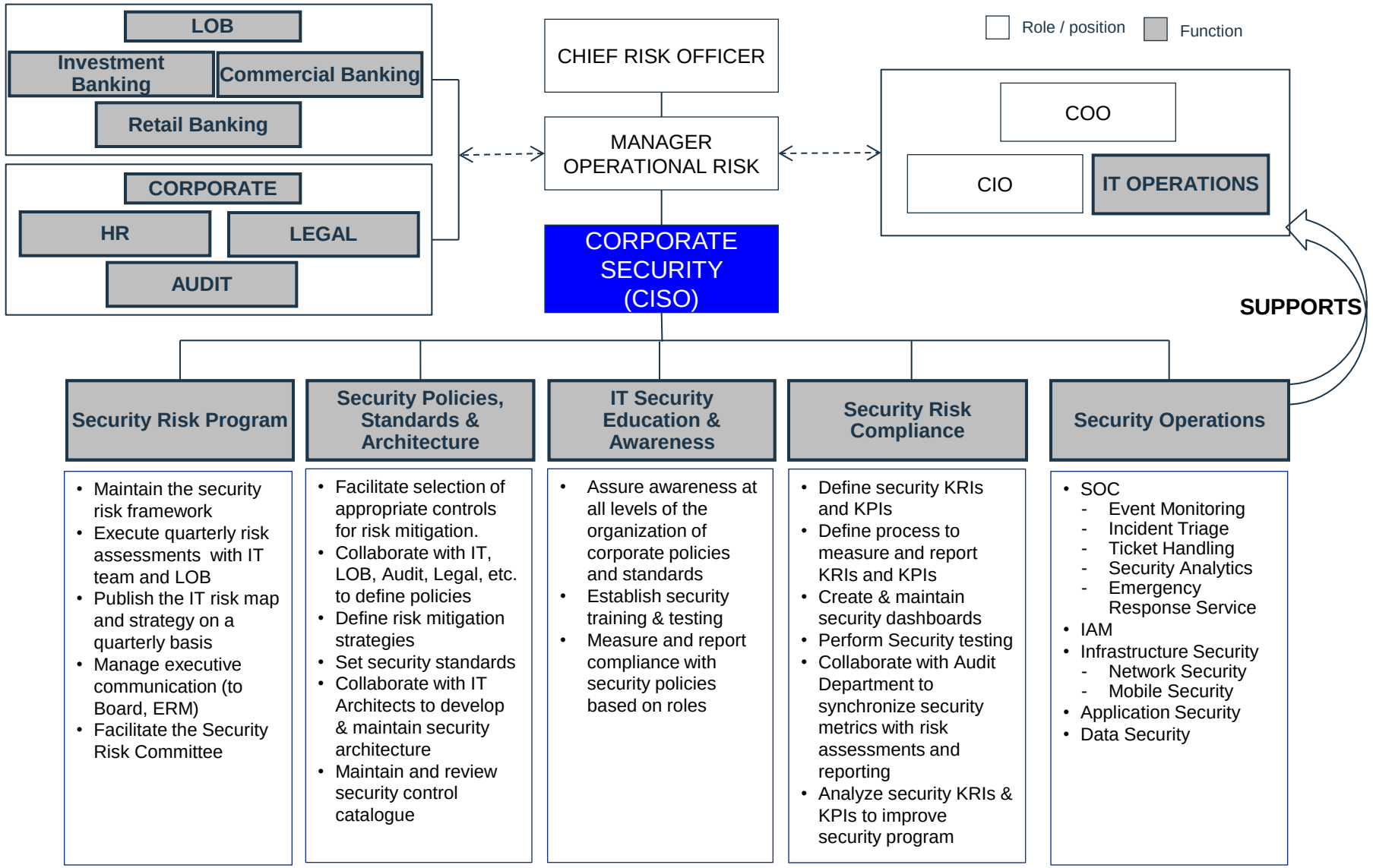


# Reference model – A business-focused CISO supported by a functional organization




| Security Strategy & Risk Oversight | Security Policies & Standards | Security Education & Awareness | Security Risk & Compliance | Security Operations |
|---|---|---|---|---|
| • Maintain the security strategy and risk framework<br>• Execute quarterly risk assessments with IT team and LOB<br>• Manage internal and external executive communication (to Board, ERM, Regulators)<br>• Chair the Cyber Security Committee<br>• Work with external peers on threats affecting the industry and joint response | • Facilitate selection of appropriate controls for risk mitigation<br>• Collaborate with IT, LOB, Audit, Legal, etc. to define policies<br>• Define risk mitigation strategies<br>• Set high level security standards to help drive security architecture and IT security standards<br>• Maintain and review security control catalogue | • Assure awareness at all levels of the organization of corporate policies and standards<br>• Establish security training & testing<br>• Measure and report compliance with security policies based on roles | • Define security KRIs and KPIs<br>• Define process to measure and report KRIs and KPIs<br>• Perform regular and ad hoc security testing<br>• Collaborate with Audit Department to synchronize security metrics with risk assessments and reporting<br>• Analyze security KRIs & KPIs to improve security program | • Security Operations and Intelligence Center<br>- Event Monitoring<br>- Incident Triage<br>- Ticket Handling<br>- Security Analytics<br>- Emergency Response Service<br>• IAM<br>• Infrastructure Security<br>- Network Security<br>- Mobile Security<br>• Application Security<br>• Data Security |

# Example Business Risk Management Organizational Model where security is clearly an element of the company's operational risk program



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