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WHEN THE GOING GETS TOUGH, THE TOUGH GET GOING

OVERCOMING THE CYBER RISK APPETITE CHALLENGE

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The scale of recent attacks and resulting media attention, supervisory pressures to upgrade cyber risk management, and the pace of technology innovation to keep up with are increasing rapidly. These factors are compelling financial institutions to have a clear understanding of the cyber risks they face, and to determine the level of cyber risk the institution is willing to accept.

An effective, measurable, and actionable cyber risk appetite (the set of statements and metrics that articulate the views of the Board of Directors and senior management about the scope and level of cyber risk the institution is willing to accept) provides institutions with a risk management capability to set and communicate strategic boundaries for cyber risk-taking across the institution.

Boards of Directors are increasingly requesting from senior management a coherent articulation of the institution's cyber risk appetite linked to the business model and strategy, and integrated into enterprise risk management. More advanced institutions have been on the journey to adopt and use cyber risk appetite as a tool for decision making. Others are now playing catch-up. Developing an effective, measurable, and actionable cyber risk appetite is difficult, especially given the fast-changing nature of this risk and that cyber acts as a gateway to other non-financial and financial risks. The blurred boundaries between cyber and other risk types need to be conscientiously addressed as part of the risk appetite design to avoid or at least clearly understand forms of "double counting".

In our experience, the journey of developing a cyber risk appetite is as important as the cyber risk appetite itself. Therefore, it is essential to engage senior management and the Board of Directors using a structured design approach that combines creating awareness and getting input. In so doing, it becomes clear why zero appetite is just not realistic.

"ZERO" APPETITE ILLUSION

The starting position of most Boards of Directors and senior management is still a close-to-zero acceptance of cyber risk. This essentially means the company cannot be "online," an unreasonable position for modern businesses. As a result, it is challenging for senior management to propose an effective risk appetite that the institution can comply with given its business strategy.

CYBER RISK APPETITE: A STRATEGIC TOOL TO MANAGE THE RAPIDLY GROWING EXPOSURE

As the scale and frequency of publicly reported cyber events – not to mention non-public events and near misses– continue to rise, cyber risk is becoming an ever more prominent topic for senior stakeholders across major financial institutions and their supervisors. In response, both internal and external stakeholders are expecting institutions to develop an effective, measurable, and actionable cyber risk appetite and to embed it into the institution's decision-making processes and governance (e.g., IT spend).

A well-designed cyber risk appetite – defined here as a set of qualitative statements and associated quantitative metrics – is a powerful risk management tool for an institution. It provides senior stakeholders (especially those not buried in day-to-day operations, like the Board of Directors and supervisors) with a crisp articulation of the level and type of acceptable cyber risks for the institution, putting cyber risk on par with other, more familiar risks like credit risk, market risk, and operational risk. As a result, an institution's cyber risk appetite can be leveraged as an anchor point to prioritize cybersecurity investments, both within cyber risk and across other risk types, to align the institution's cyber posture to its risk appetite. When cascaded through the institution, cyber risk appetite becomes a powerful communication tool that enables cyber risk to be more tangible across business and support functions, raising awareness for cyber risk and for the need to manage it at every organizational level. Where metrics and thresholds are consistently propagated throughout the institution and linked to tangible actions, the cyber risk appetite acts as a governance mechanism to ensure rapid escalation of issues through early warning indicators.

Therefore, an effective, measurable, and actionable cyber risk appetite should be considered a pivotal element of an institution's cyber risk management framework.

DEFINING AN EFFECTIVE CYBER RISK APPETITE IS HARD...

Crafting an effective cyber risk appetite is not a trivial undertaking and getting it right is hard (despite a common belief that it's not too difficult to "write down a few statements that characterize the institution's risk-taking capacity"). But the consequences of a poorly articulated cyber risk appetite can be significant.

Boards of Directors and supervisors continue to put pressure on senior management to define or improve the cyber risk appetite of their institution. While leading institutions have been at this for a while, many institutions are still experimenting with (and some haven't even started) defining their cyber risk appetite. Across the financial services sector we observe four primary challenges explaining why some institutions have tried, but failed, (or haven't even tried) to define a meaningful cyber risk appetite.

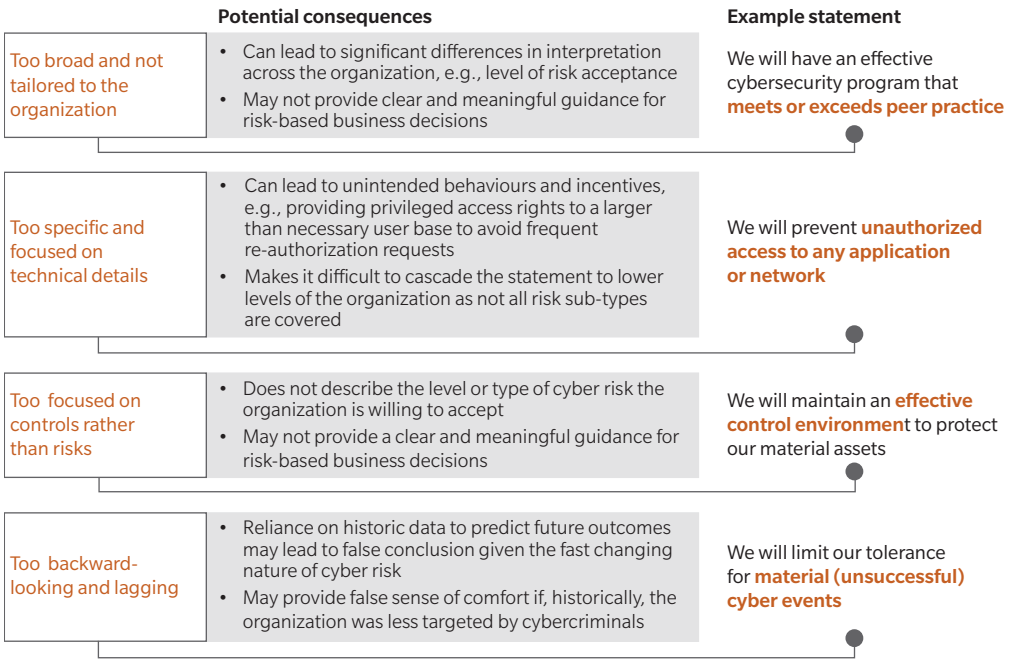
Exhibit 1: Cyber risk appetite challenges

	**Quantification challenge:** The industry has not yet agreed upon a standard approach to quantifying cyber risk (outside of scenario analysis for operational risk more broadly). In addition, institutions have only rudimentary cyber-related data that encompass a limited time-series. This complicates identifying metrics that can be tracked on an ongoing basis supported by historical data to define "normal" ranges.
	**Data challenge:** Given the rapidly-evolving nature of cyber risk, the relevance of historical data for the design of a cyber risk appetite is limited. Forward-looking statements and metrics are needed to enable institutions to identify potential issues before they become victims to the next headline-grabbing cyber incident.
	**Communication challenge:** Cyber risk metrics and reporting tend to be very technical and overwhelmingly detailed, especially for the Board. To ensure that cyber risk appetite is actionable, institutions need to strike the right balance between being too technical and too abstract, which is a difficult exercise.
	**Embedding challenge:** Cyber risk is far more than an IT problem. It spans people, processes, and technology. Therefore, it is difficult to design top-of-the-house risk appetite statements that are meaningful and communicable, can be cascaded to granular levels of the institutions, and can be translated into actionable business decisions.

… AND CONSEQUENCES CAN BE SIGNIFICANT

A cyber risk appetite is more than just words and metrics. Appropriately adopted by and communicated throughout an institution, it can have tangible impact on business activity and behavior. Poorly articulated statements can cause confusion and may cause employees to take unproductive or potentially harmful actions. We generally see four main drivers of cyber risk appetite statements that can lead to unintended consequences, with cyber risk appetite not being effectively embedded in the institution. Exhibit 2 provides the drivers, lists example statements, and describes the potential impact.

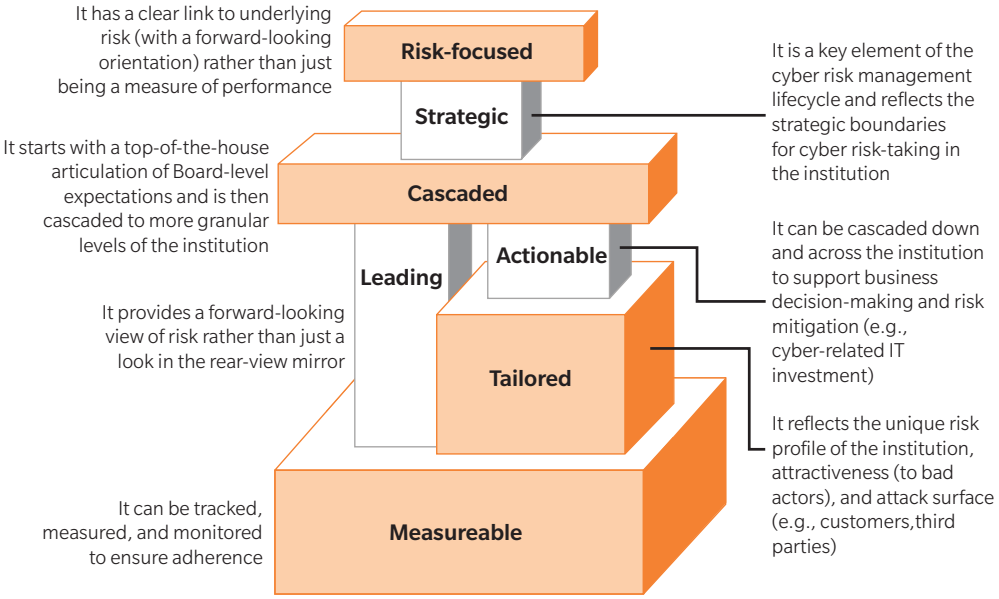
Exhibit 2: Examples of poorly articulated cyber risk appetite statements



THEREFORE, IT'S IMPORTANT TO GET IT RIGHT

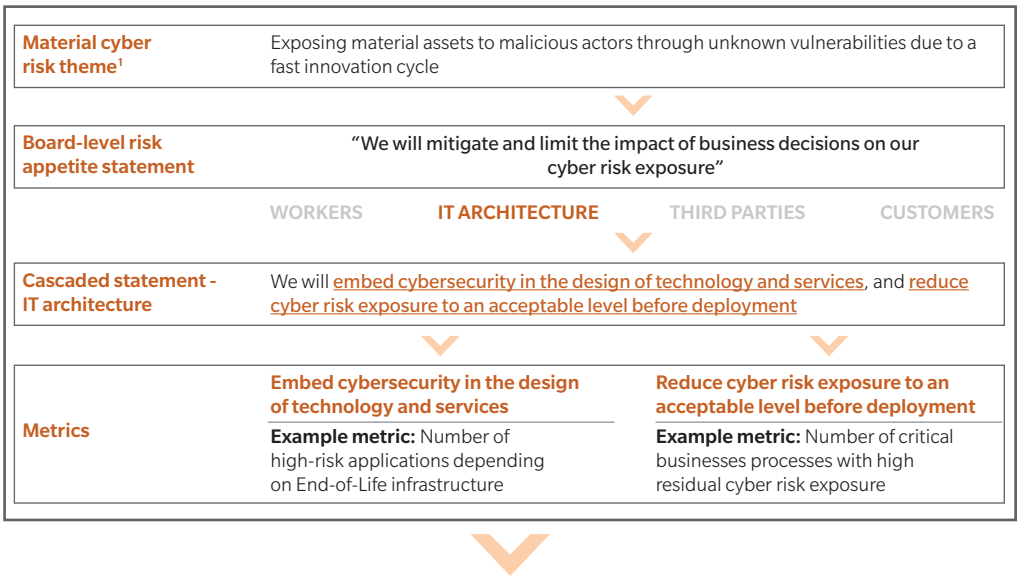
Given the importance of a cyber risk appetite, the challenges in defining it meaningfully, and the consequences if institutions get it wrong, employing a structured approach is critical, starting with a commonly agreed-upon set of design principles. We have found the following principles to be useful when designing a cyber risk appetite (statements and metrics).

Exhibit 3: Building blocks for an effective, measurable, and actionable cyber risk appetite



With these principles in mind, we believe that an effective, measurable, and actionable cyber risk appetite starts with the material cyber risk themes identified through a cyber risk identification and assessment process. A particular theme (or group of themes) is then linked to a statement that is subsequently cascaded to the different elements of the attack surface (i.e., workers, IT architecture, third-parties, customers). At that level, the statement is generally concrete enough to link metrics and thresholds designed to measure compliance with the statement. Metrics are aggregated and rolled up to the Board level using appropriate aggregation approaches (e.g., worst-off). Using this approach allows institutions to derive risk appetite statements and metrics that can be effectively translated into business decision processes to ensure that risk appetite is embedded in the institution. Exhibit 4 shows a high-level example for IT architecture.

Exhibit 4: What a good-practice cyber risk appetite looks like - IT architecture example



Impact on business decisions

- **Business strategy:** Cyber risk needs to be assessed as part of the due diligence when evaluating strategic business decisions, e.g., acquisitions, market entry. Decision makers need to consider the impact of business decisions on the organization's cyber risk appetite, e.g., does the new business expose the organization as a whole to more or different cyber risk?
- **Product/service strategy:** The new product approval process needs to consider clear criteria to evaluate the impact of new products and services on the cyber risk exposure of the business/organization.
- **IT strategy:** All relevant IT decisions need to consider the cyber risk implications for the organization, e.g., End-of-Life strategy, infrastructure replacement. Additionally, cyber risk needs to be considered an input/driver for the IT strategy, e.g., moving to cloud services to improve cybersecurity capabilities.
- **IT development:** The application and system risk assessment needs to reflect cyber risk assessment criteria. The assessment results need to inform the type and scope of security controls required for detection and protection.

1. Theme identified through the cyber risk identification process

Linking relevant quantitative metrics to well-designed qualitative statements is important to measure the level of compliance of the institution with the risk appetite statement. Often more than one indicator is needed to adequately reflect a given risk appetite statement. The metrics selection process should ensure that (a) the metrics have a clear link to the statement, (b) data required to measure the metrics are available or can be collected in a timely fashion, (c) the metrics are measuring risk (rather than pure performance) and the design of the metrics is forward looking where possible, and (d) the metrics are simple and easy to interpret for an audience less familiar with the topic.

The limited availability of internal (and external) historic data for potential cyber risk metrics makes the calibration of thresholds challenging. Therefore, alternative calibration approaches need to be used to establish meaningful thresholds. Exhibit 5 outlines potential calibration approaches for different types of cyber risk metrics.

Exhibit 5: Calibration approaches for cyber risk metrics

Increasing sophistication

Calibration approach	Description	Example metrics categories
Modelling	• Analytical approach based on the output of a model • Adjustment of analytical results through management overlays	• Cyber Value-at-Risk • Cyber scenario losses
Trend analysis	• Analysis of internal or external historical data • Adjustment of historical data through management overlays	• Phishing • External assessment • Sentiment score
Expert/industry benchmarks	• Expert judgement based on industry/business expertise supported by benchmarks • Back-tested against internal data if available	• External assessment • Third-party assessments • Phishing
Internal comparison	• Benchmarking of sub-groups (e.g., functions, business lines) relative to each other • Benchmark may change over time	• Vulnerabilities/security issues • Events • Phishing

Changes in the external environment, the internal preparedness, or the business model can significantly impact the threshold for cyber risk metrics. Therefore, thresholds should be reviewed and refreshed at least annually, or more frequently in case of metrics that are impacted significantly by changes in external or internal factors.

But measuring alignment to the cyber risk appetite is not enough. To embed cyber risk appetite within the institution it is important to link tangible actions to cyber risk appetite threshold breaches. Actions should include a root cause analysis and a remediation plan to address the underlying problem that is discussed with senior management and the Board of Directors. The discussion in senior management and Board of Directors committees creates awareness, and ensures that remediation plans address structural issues and that management has the relevant resources to address the problem.

KEY STEPS FOR CRAFTING AN EFFECTIVE CYBER RISK APPETITE

Designing an effective cyber risk appetite for an institution starts at the Board of Directors level. Once the Board-level cyber risk appetite is established, the statements and metrics can be cascaded to lower levels of the institution. Starting from the Board of Directors, we recommend using a structured approach to designing an institution's cyber risk appetite framework.

1 Indentify key cyber risks for the institution	Articulate a cyber risk taxonomy and link the institution's cyber risk identification outcome to the taxonomy
2 Define the objectives and constraints	Consider the broad range of constraints and associated objectives (e.g., financial, reputational, regulatory) that impact cyber risk appetite
3 Create qualitative statements and identify metrics	Define cyber risk appetite statements and associated quantitative metrics linked to the cyber risk taxonomy and threats
4 Test the implications and consequences	Review the emerging cyber risk statements and explore what the outcomes would be if these were solidified (e.g., target customer segments, changes in the use of third parties, changes in access rights, changes in controls)
5 Calibrate metric thresholds	Consider the metric type, available data, and the institution's analytical capabilities in determining the correct approach to establishing thresholds for the quantitative metrics
6 Define cascading approach	Determine the level of organizational granularity to which cyber risk appetite statements and metrics will be cascaded – considering risk profile, business model, and structure of the overall risk appetite
7 Define cyber risk appetite maintenance operating model	Link risk appetite threshold breaches to tangible actions that allow the institution to "return to green"

Designing an effective cyber risk appetite is crucial for any institution that has exposure to the internet. Although it can be a daunting task, getting it right can deliver real value for the institution. A well designed cyber risk appetite (including statements and metrics) serves as a powerful tool for prioritizing cybersecurity investment, making sound cyber risk management decisions, and creating awareness for cyber risk across the institution.

Oliver Wyman is a global leader in management consulting that combines deep industry knowledge with specialized expertise in strategy, operations, risk management, and organization transformation.

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