

Deloitte.



Cyber Resilience
Assessment Toolkit for DFS Critical Infrastructure

ITU Regional Cybersecurity Summit for Africa - 21st November 2023



Agenda

- 1 Overview
How will the presentation flow
- 2 The DFS Ecosystem
The elements provided to users for the toolkit's use
 - 2.1 The DFS Ecosystem
 - 2.2 The Technical Report
 - 2.3 Methodology
- 3 Toolkit
An overview of the toolkit's main parts and functions
 - 3.1 DFS Resilience Toolkit Phases
 - 3.2 Toolkit Questions
 - 3.3 Guidance Results Assessment
- 4 How can the Toolkit support you?
The added value of the Toolkit
- 5 Key Takeaways
Lesson learned and insights of the project



Overview

Today's presentation focuses on multiple aspects of the Cyber Resilience Toolkit and Methodology. Below, you can see a preliminary snapshot of the main topics addressed and their brief definition

DFS Ecosystem Understanding



DFS Ecosystem Actors (focus on slide 4)

All DFS Ecosystems see a profound and direct interconnection between critical assets and four main actors. These include the financial sector, the telecommunication sector, third-parties, and the DFS final user.



The Technical Report (focus on slide 5)

The Methodology and a deeper focus into the analysis of the DFS ecosystem is contained in a Word document, which will be shared with all relevant and identified entities.



Methodology (focus on slide 6)

The establishment of a Cyber Resilience Toolkit to self-test DFS entities' cyber preparedness dictates the definition of a resilience methodology that considers multiple international frameworks and standards.

DFS Ecosystem Resilience Self-Assessment



DFS Resilience Toolkit Phases (focus on slide 7)

To successfully complete the self-assessment, entities and regulators are encouraged to follow an operational path divided into four critical steps.



Toolkit Questions (focus on slide 8)

The Toolkit includes questions that aim to test the entity's cyber resilience level. The toolkit's questions must be answered truthfully to reflect the true status of cyber preparedness.

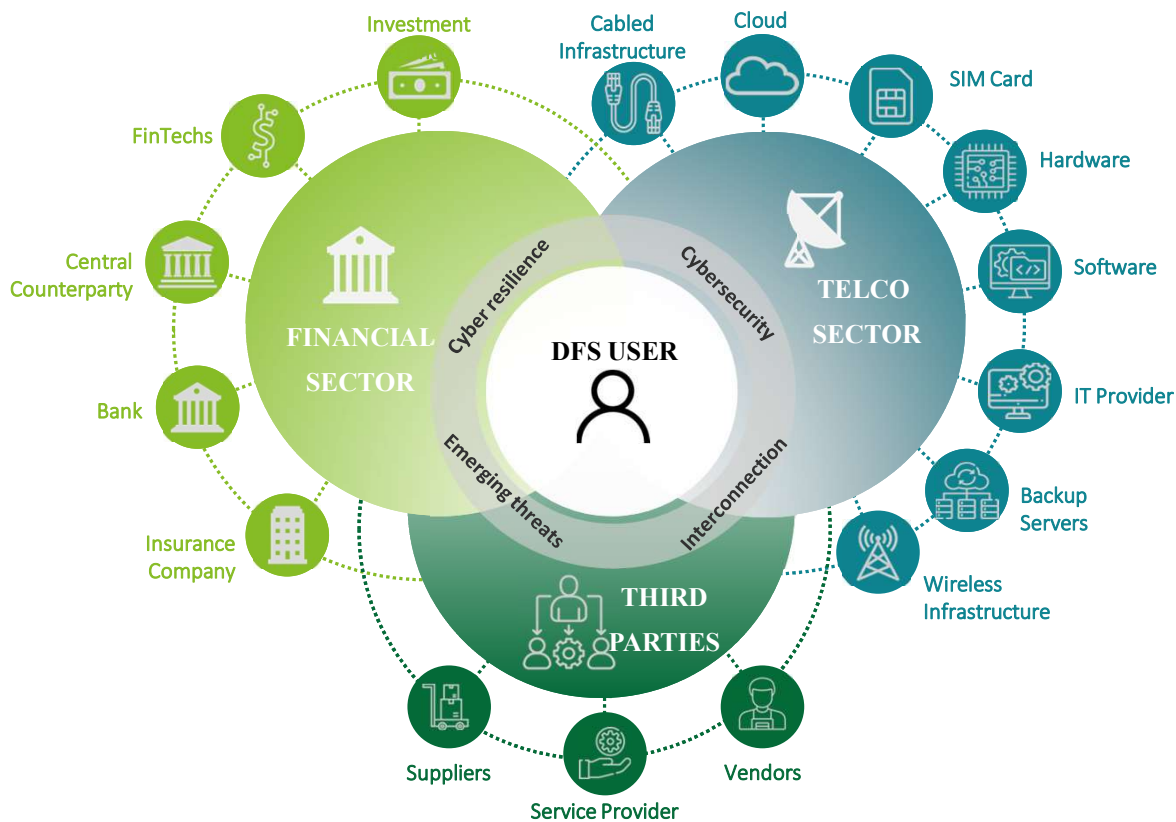


Guidance Results Assessment (focus on slide 11)

As entities complete the tests, the results are portrayed in bar charts, radar charts, and ad-hoc infographics to facilitate the identification of weakness, data sharing, and roadmapping.

The DFS Ecosystem

As the Digital Financial Services (DFS) become central in citizens' daily lives, the interconnection between sectors increases. As any DFS operation starts and ends, four main actors (the telecommunication sector, the financial sector, third-parties, and DFS users) ensure a successful communication flow



Most common vulnerabilities and threats



- Credential Attacks
- Systems and Platforms Attacks
- Code Exploitation Attacks
- Data Misuse Attacks
- Denial of Service Attacks
- Insider Attacks
- Social Engineering Attacks
- DFS Infrastructure Attacks
- SIM Attacks
- DFS Services Attacks
- DFS Data Attacks
- Malware Attacks
- Zero-day Attacks
- Mobile Devices Attacks
- Personal Information Attacks

The Technical Report



The analysis of the DFS ecosystems and its main actors is contained in a technical report, which will be provided to all relevant entities and will include a tailored methodology to introduce the self-assessment Toolkit

Key characteristics of the Word Document



Includes a deep dive into the DFS Ecosystem



Focuses predominantly on Emerging Markets and Developing Economies (EMDEs)



Includes a high-level strategic overview over the most common threats, risks, and vulnerabilities



Includes a cutting-edge methodology that takes into account the latest cyber-related policies and frameworks



The Word document lays the needed theoretical foundation to use the Toolkit and define ways to improve the ecosystem's cyber resilience level



It contains an annex with all provided Cyber Resilience questions

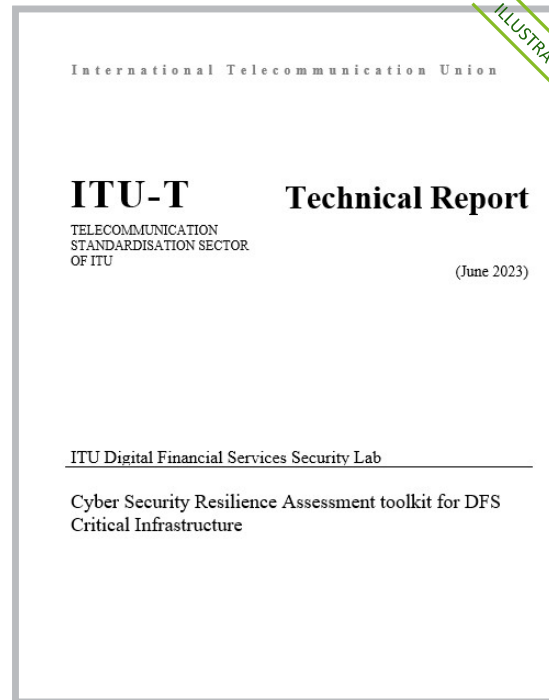
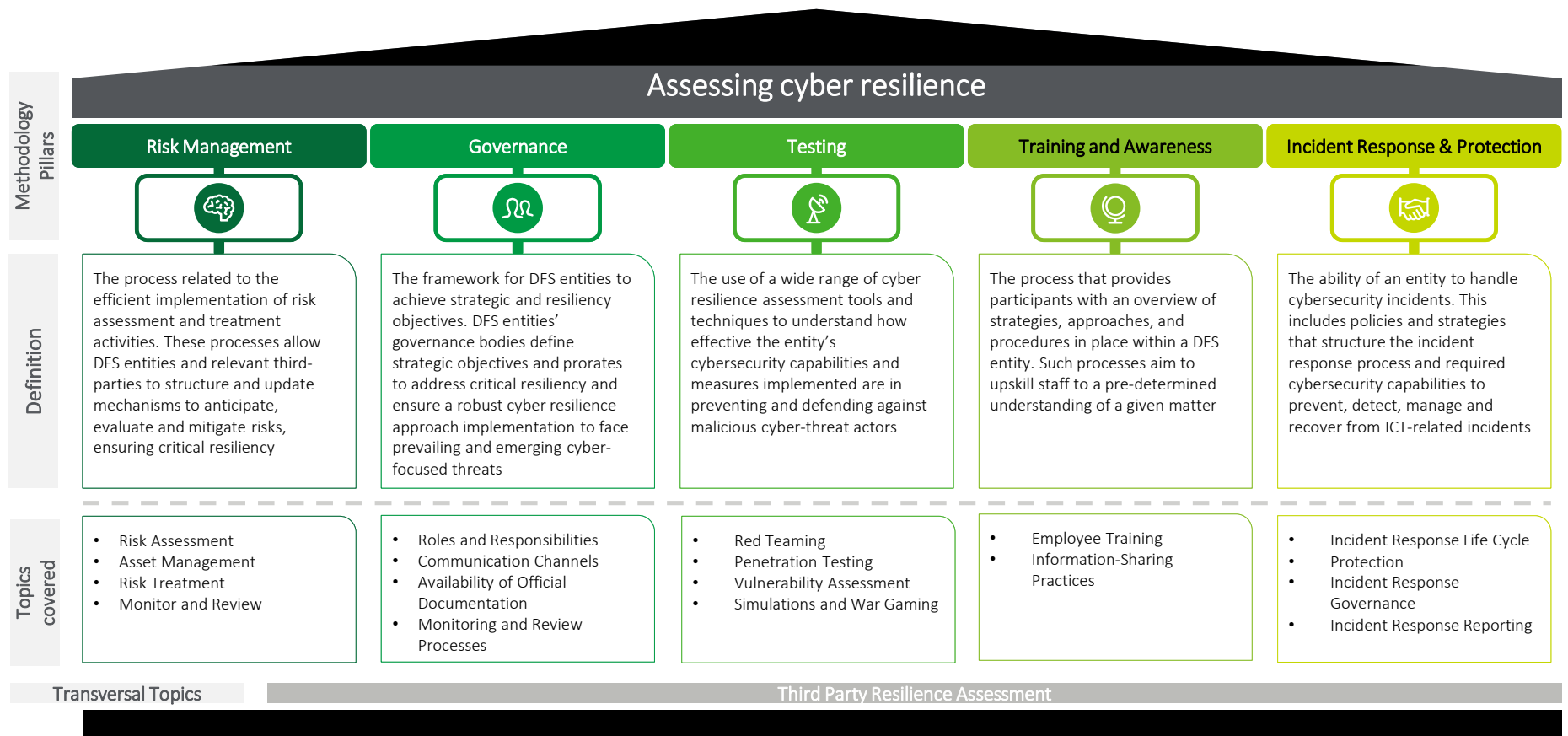


TABLE OF CONTENTS		Page
PRELIMINARY ELEMENTS		
CONTEXT	3	3
SUMMARY	3	3
SCOPE	3	3
KEYWORDS	3	3
REFERENCES	4	4
TAXONOMY AND TERMINOLOGY	9	9
Terms defined elsewhere	9	9
Terms defined here	18	18
ABBREVIATIONS AND ACRONYMS	19	19
CYBERSECURITY RESILIENCE ASSESSMENT TOOLKIT FOR DFS CRITICAL INFRASTRUCTURE		21
1 OVERVIEW	21	21
2 CYBER RESILIENCE TOOLKIT	22	22
2.1 Objectives	22	22
2.2 DFS Critical Entity Identification Matrix	23	23
2.3 Structure of the Cyber Resilience Assessment Toolkit	23	23
2.4 How regulators would use the Toolkit for the cyber resilience assessment of DFS entities	25	25
2.5 Example	26	26
3 MAPPING THE DFS INFRASTRUCTURE	28	28
3.1 Identified Actors	28	28
3.2 DFS Vulnerabilities, Most Common Threats, and Related Mitigation Measures	31	31
3.3 Main Considerations on Mapping the DFS Infrastructure	38	38
4 ESTABLISHING A METHODOLOGY	40	40
4.1 Risk Management	42	42
4.1.1 Risk Assessment	42	42
4.1.2 Risk Treatment	46	46
4.1.3 Monitor and Review	46	46
4.1.4 Third-Party Risk Management	49	49
4.2 Governance	51	51
4.2.1 Roles and Responsibilities	51	51
4.2.2 Communication Channels	52	52
4.2.3 Availability of Official Documentation	53	53
4.2.4 Monitoring and Review Processes	54	54
4.2.5 Third-Party Governance	54	54
4.3 Testing	56	56
4.3.1 Red Teaming	56	56
4.3.2 Penetration Testing	57	57
4.3.3 Vulnerability Scanning	58	58
4.3.4 Simulations and War Gaming	59	59
4.3.5 Third-Party Testing	60	60
4.4 Training and Awareness	62	62
4.4.1 Employee Training	62	62
4.4.2 Information-Sharing Practices	65	65
4.4.3 Third-Party Training and Awareness	65	65
4.5 Incident Response	66	66
4.5.1 Incident Response Life Cycle	66	66
4.5.2 Incident Response Governance	73	73
4.5.3 Incident Response Reporting	75	75
4.5.4 Third-Party Incident Response	77	77
CONCLUSION	79	79
APPENDIX A – DFS CYBER RESILIENCE ASSESSMENT TOOLKIT QUESTIONS	80	80

Methodology



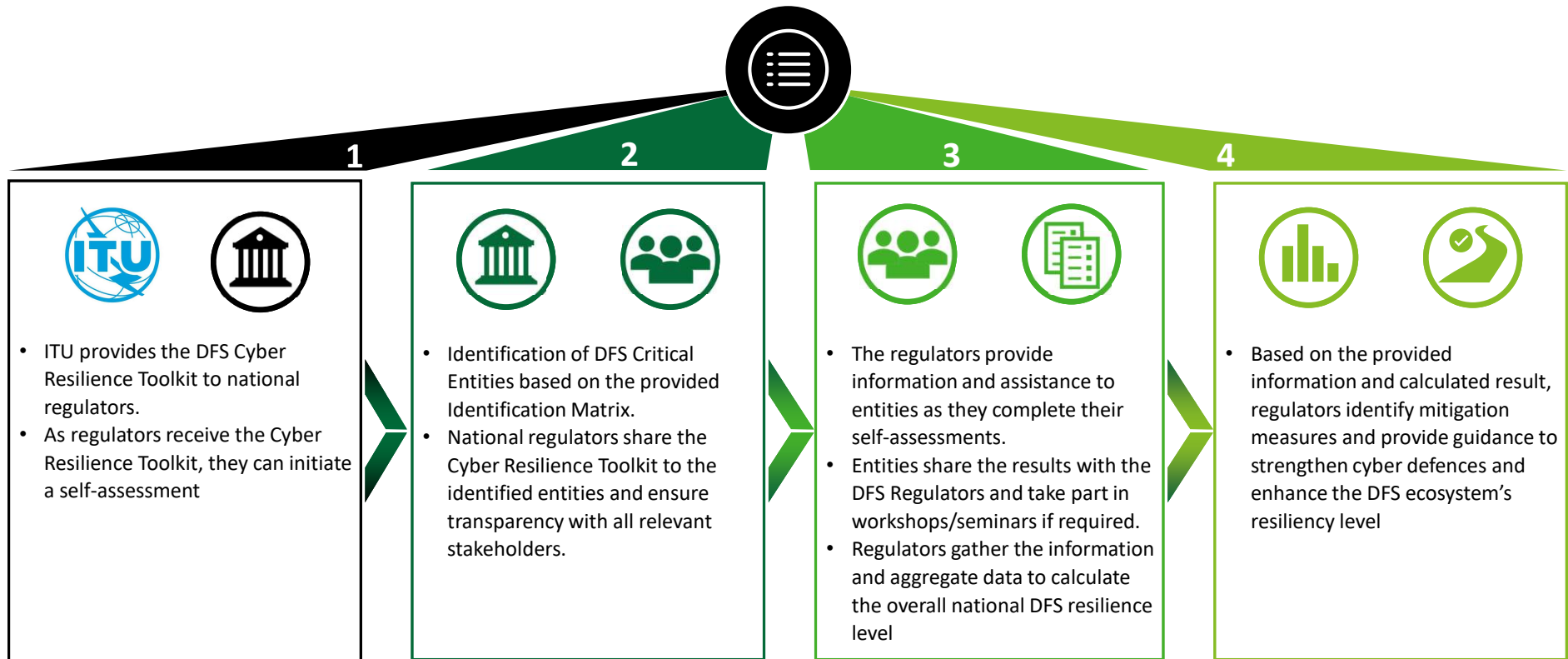
The DFS Resilience Toolkit's Pillars represent the main areas or categories of focus for the DFS Ecosystem Resilience analysis. Each Methodology Pillar leads to the definition of a specific categories of questions within the Toolkit



Toolkit - Phases



Below is an overview of the expected phases of toolkit's life-cycle. The process begins from the interactions between ITU and national regulators and progress towards the gathering and analysis of data and results



Toolkit – Questions (1/3)



Toolkit's Questions are provided to users in categories. Each Category, or toolkit's sheet containing specific questions related to the corresponding methodology's Pillar.

DFS Toolkit's Pillars



Risk Management



Governance



Testing



Training & Awareness



Protection



Incident Response



DFS Toolkit's Domains



Risk Management

Identification, estimation and prioritisation of risk related to multiple diverse actors and processes.



Governance

The framework for DFS entities to achieve strategic and resiliency objectives. This is critical to ensure a robust cyber resilience approach implementation to face prevailing and emerging cyber-focused threats



Testing

Assessment of an organization's cybersecurity capabilities and measures implemented to understand how effective they are in preventing and defending against malicious cyber-threat actors



Training & Awareness

The process that provides participants with an overview of strategies, approaches, and procedures in place within a DFS entity. Such processes aim to upskill staff to a pre-determined understanding of a given matter



Protection

Guidelines provision for securing the entity's data, systems, networks, and applications. Furthermore, it assesses how to establish an incident response capability to prepare the organisation for malicious cyber events



Incident Response

The ability of an organisation to handle cybersecurity incidents. This includes policies and strategies that structure the incident response process and required cybersecurity capabilities to detect, manage, and recover from ICT-related incidents




Toolkit – Questions (2/3)

Each question, or row of the Toolkit’s sheet, is composed of several columns. For each column, the cell provides information concerning the specific question such as Pillar and Sub-pillar, ID, Applicability and Question’s content.


Cyber resiliency Questions are structured as follows:

Pillar	Subpillar	ID	Applicability	Question
Risk Management	Third-Parties	RM.01	FS Entity / Telco Entity	Is the entity reliant on a specific supplier? Does it have a business continuity plan in place in case suppliers or other linked services are unavailable?


Pillars
Main category of Methodology’s Pillar. Each section (sheet) of Toolkit’s questions will have the same Pillar as reference. This distinction will be leveraged to further analyse and detail overall score



Sub-Pillar
Sub-categories of Methodology’s Pillar. Depending on the specific Pillar, each section (sheet) of Toolkit’s questions will have several sub-pillars as reference. This distinction will be leveraged to further analyse and detail overall score




ID
Identificatory code to facilitate cross-communication




Applicability
Applicability of the question to the nature of the actor undertaking the assessment
The user will filter the applicability column to ensure that it is only shown applicable questions. The categories identified are:

- FS Entity
- Telco Entity
- FS Entity / Telco Entity
- FS Regulator
- Telco Regulator
- FS Regulator / Telco Regulator



Question
Each row of the sections (sheet) will provide a set of Question related to the identified Pillars and Sub-Pillars
Having filtered Questions based on the Applicability, users will answer applicable questions



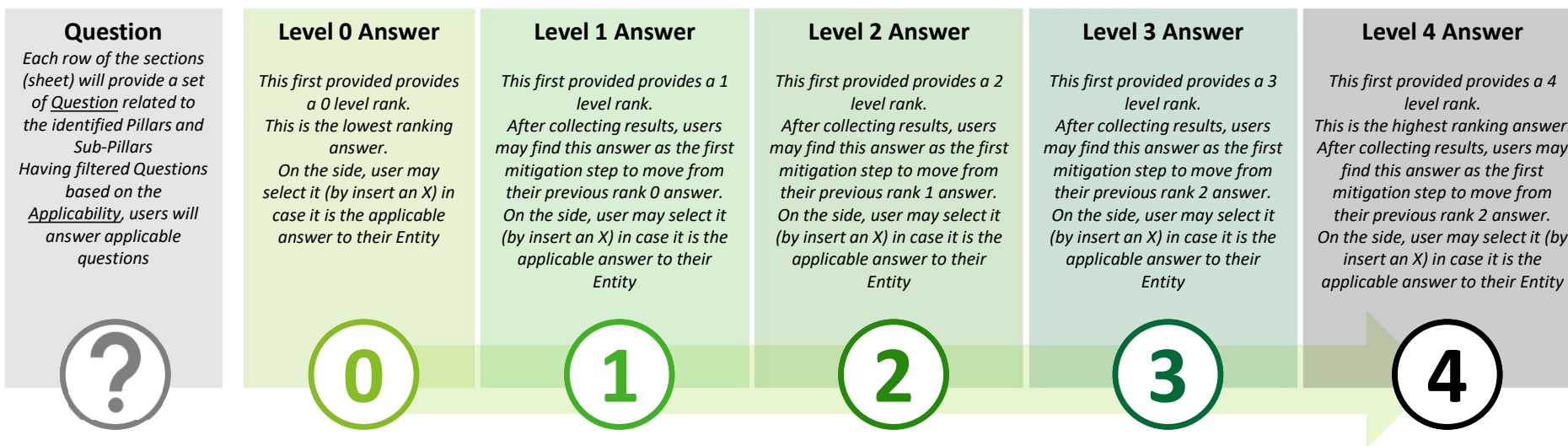
Toolkit – Questions (3/3)

Below is an overview of the second part of Toolkit’s Questions.



Cyber resiliency Questions are structured as follows:

Question	Resilience level 0	Resilience level 1	Resilience level 2	Resilience level 3	Resilience level 4
Is the entity reliant on a specific supplier? Does it have a business continuity plan in place in case suppliers or other linked services are unavailable?	Yes, the entity relies on a supplier, but it currently has no business continuity plan.	Yes, the entity is reliant on a supplier. It has a preliminary continuity plan, but it is still basic and not fully functioning	Yes, the entity is reliant on a supplier, but management has started to diversify the relationships with other third-parties	No, the entity is not reliant on a specific supplier but it has no business continuity plan	No, the entity is not reliant on a specific supplier, and it has a coherent, over-reaching, and functioning business continuity plan



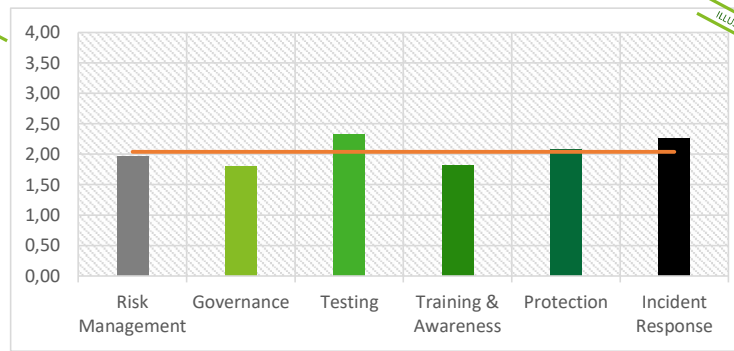
Toolkit - Results



The self-assessment's results will provide information based on Overall score, Pillars' score and Sub-pillars' score, and will facilitate the identification of weaknesses in the ecosystem

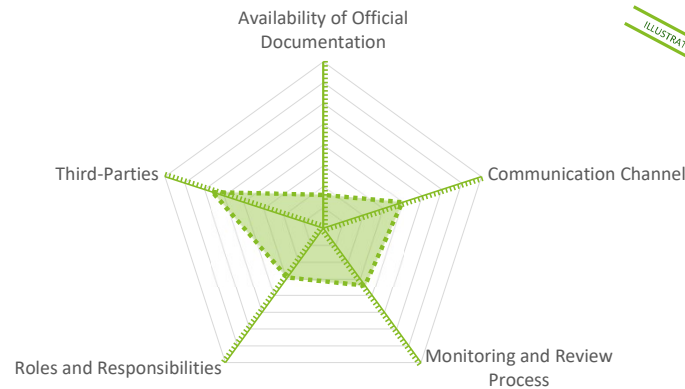
Overall Score

Pillar	Resiliency Score	Resiliency Level
Risk Management	1,97	BASIC
Governance	1,79	BASIC
Testing	2,33	INTERMEDIATE
Training & Awareness	1,81	BASIC
Protection	2,07	INTERMEDIATE
Incident Response	2,26	INTERMEDIATE
Overall	2,04	INTERMEDIATE



Governance Score

Subpillar	Resiliency Score	Resiliency Level
Availability of Official Documentation	0,80	NONE
Communication Channels	2,00	INTERMEDIATE
Monitoring and Review Process	1,71	BASIC
Roles and Responsibilities	1,47	BASIC
Third-Parties	2,80	INTERMEDIATE
Governance	1,79	BASIC



DFS Resilience toolkit Score

The DFS Cyber Resilience Toolkit provides entities and regulators undertaking the self-assessment with:

- An **overall score** showing the overall resilience level of the user per Pillar.
- An **individual score** per Pillar, showing the cyber resilience level of the user per Sub-pillar. The radar charts allow the user to understand the main shortcomings for each Pillar and Sub-pillar.

How can support you?

The Cyber Resilience Toolkit and Methodology support the correct identification of cyber threats, risks, and mitigation measures. The document provided includes strategic points of cutting-edge and innovative methodological frameworks that will facilitate the improvement of DFS actors' resilience levels, cyber preparedness, and knowledge of the most common threats, risks, and vulnerabilities.



Advantages

Tailored set of DFS questions

The ITU Cyber Resilience Assessment documents provide a tailored set of DFS-focused questions that aim to review, assess, and strengthen the digital financial ecosystem. This includes a particular focus on DFS actors, threats most commonly identified in DFS operations, and scenarios specific to digital financial services.

Focus on Emerging Markets

While digital financial services expand worldwide, this ITU document focuses predominantly on instances related to emerging markets and developing economies. This methodology and the affiliated toolkit support the identification of threats and risks that may cause critical service disruption in emerging economies. By initiating the self-assessment, DFS actors mitigate the risk of malicious operations and take steps to improve peripheral and internal defences.



Cutting-edge frameworks

The documents take into consideration the latest cutting-edge cybersecurity methodological frameworks, such as the EU-sponsored Digital Operational Resilience Act (DORA). By including such frameworks, the Cyber Resilience Assessment Toolkit and Methodology want to support emerging economies and more developed realities in embarking in strategic and tactical managerial overhauls that would increase short-term and long-term cyber resilience.

Identification of improvement measures

The documentation shared with this project will facilitate the identification of weaknesses in any world-wide DFS ecosystems. The profiling of risks, threats, and vulnerabilities will in turn enhance regulators' ability to standardize incident response plans, define operational roadmaps, and mitigate threats.

Deloitte.

Thank you!