

# Data Collection by Supervisors of Digital Financial Services (DFS)

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# Disclaimer

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The slide deck is a supplement to the following official and peer reviewed CGAP Working Paper:

- ✓ [Data Collection by Supervisors of Digital Financial Services](#), (2018).

“Oversight of financial markets and policy decisions are only as good as the data supporting them.”

—OFR 2016

## **Introduction**

Key Definitions

Findings on DFS Reporting

What DFS Data are Required?

Standardization of DFS Data

Granular DFS Data

Data Collection Mechanisms

Technology and DFS Data

Annex



Effective DFS supervision is essential for sustained, healthy financial inclusion



Data is at the core of any financial supervision

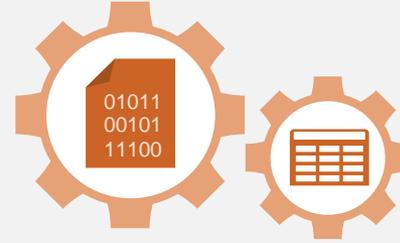


Quality DFS data becomes central for effective DFS supervision



## RegTech

technological solutions to facilitate regulatory compliance and risk management by financial institutions



## SupTech

technological solutions focused on improving processes (including data collection and analytics) at financial supervisory authorities

# What are good data?



## **Complete**

No missing data according to data needs



## **Timely**

At the right time and frequency, not excessively outdated



## **Accurate**

Reliable, credible, and correct

# What are bad data?

Examples of when complete, accurate and timely data are lacking



**The data are incomplete:** Through the newspapers, the DFS supervisor learns about a fraud case in which employees manipulated suspense accounts via the account management system to steal customers' funds. Despite receiving daily returns from all e-money issuers, the supervisor had no information on suspense accounts.



**The data are not timely:** The e-money industry in Emoneyland is growing at a pace of 300% per year, but the e-money issuers report only every April to the DFS supervisor about their operations in the previous year.



**The data are inaccurate:** A monthly regulatory report from a nonbank e-money issuer informs that the total e-money issued is US\$10 million. When inspecting the e-money issuer, the supervisor finds that the total e-money issued is actually US\$100 million.

# What could lead to poor quality data?

## Lack of good planning

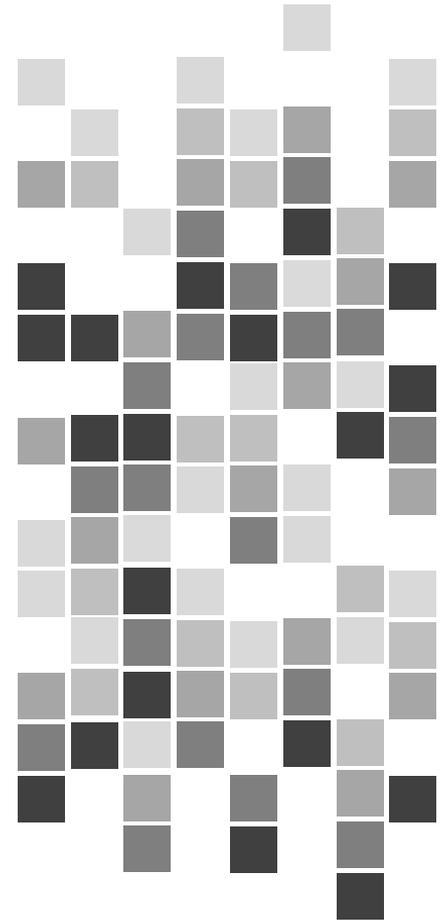
No data-needs mapping.

Lack of inter-agency coordination to identify common needs and avoid duplicity.

Inadequate guidance to reporting institutions.

## Inadequate data collection mechanisms:

- Ill-designed report templates
- Ineffective or incomplete standardization
- Manual reporting and data management processes
- Inadequate IT systems



**The results: poor data, duplicate reporting requirements**

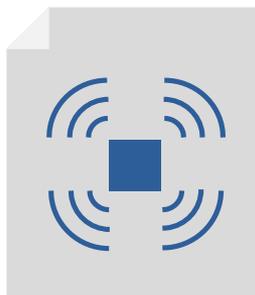
# Policy and supervisory objectives

The data needed depend on policy objectives and how policy objectives are translated into supervisory objectives.

E.g., In advanced economies where nonbank e-money issuers are not a priority for supervision, less data are collected on them than in EMDEs that have a substantial nonbank e-money issuing industry that serves millions of customers.

By identifying the information needed for each supervisory objective, authorities can define elements of reporting requirements:

**Scope**  
the specific content to be collected



**Periodicity**  
the frequency with which data are collected

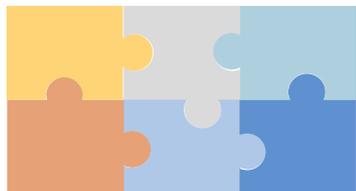
**daily**  
**monthly**  
**quarterly**  
**annually**

**Format**  
the level of aggregation and the definitions to be used



# Mapping: putting the pieces together

Illustrative example of how data needs can be mapped by financial authorities



**Policy objective:**  
Increase efficiency of the national payments system<sup>1</sup>

**Specific supervisory objective:**

Monitor the evolution of the use of digital transaction accounts

**Understand high-level and corresponding data point needs**

**Penetration of e-money accounts in an area:**

- Total number of e-money accounts
- Total adult population

**Use of e-money accounts:**

- Total volume of merchant purchase transactions in e-money accounts

**Periodicity of data:** Semi-annually

**Format of data:** Aggregated data (e.g., reporting will be of high-level data calculated and reported by the institution)

# Why mapping data-needs is important



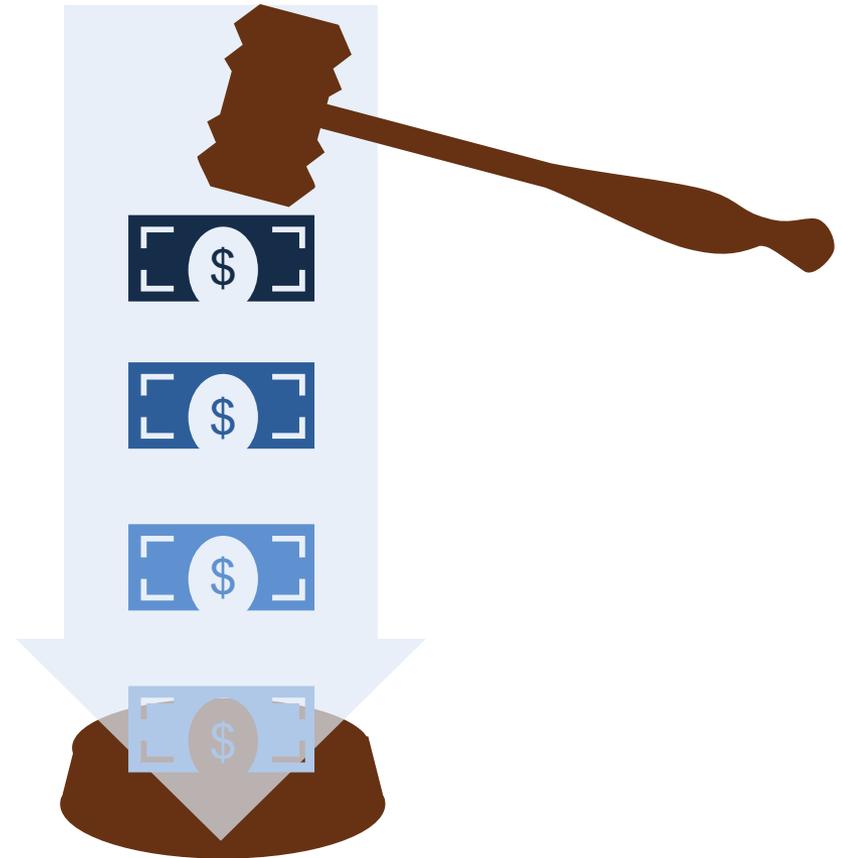
# Keeping compliance costs down

Keeping compliance costs down is important for DFS in a financial inclusion context, and for small institutions.

Relative cost of dedicating staff time to regulatory reporting can be higher than for large institutions.

Some authorities are required to keep compliance costs down.

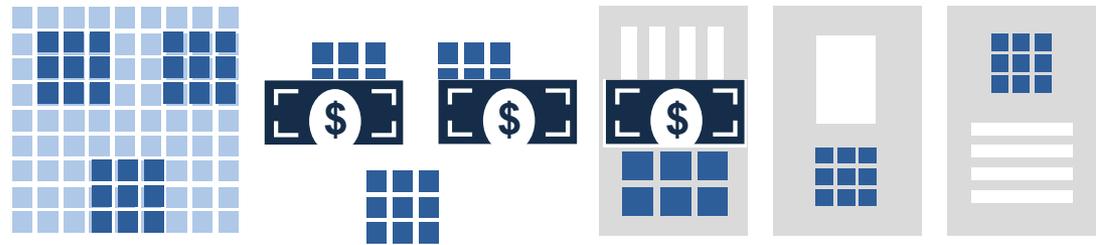
Some researched countries have lower or no reporting requirements for small nonbank e-money issuers.



# Costs and data collection mechanisms



Regulatory reporting costs depend more on the **data collection mechanism** than on the amount of data.



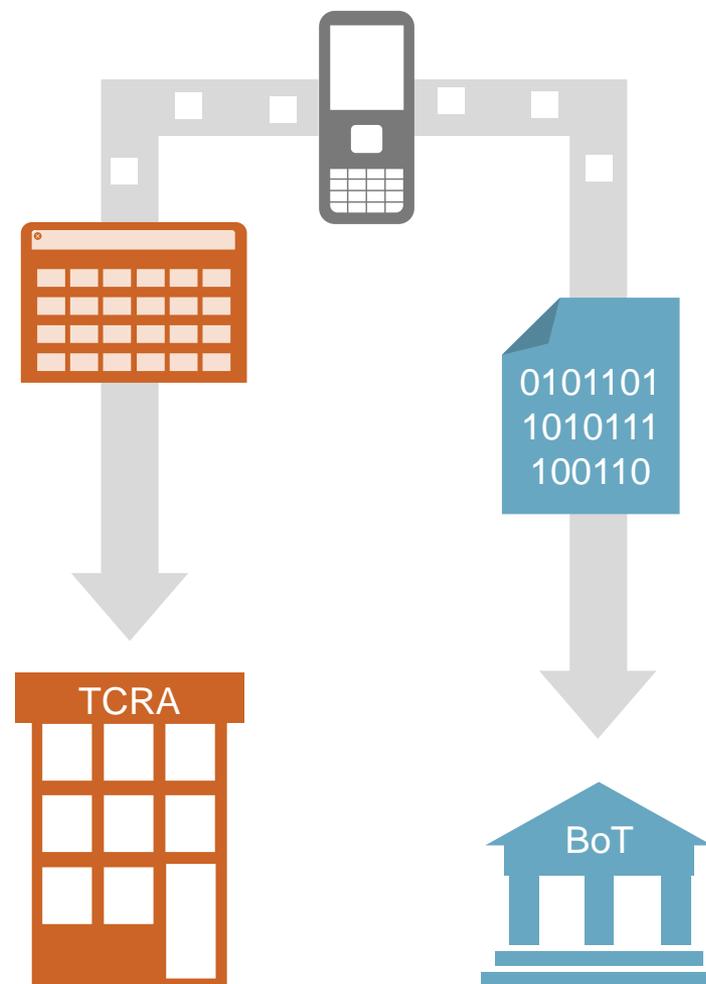
Reporting a small amount of data that need to be aggregated and formatted into separate report templates can be more costly than reporting a larger quantity of granular data through an automated process that does not use report templates.

# Duplication in DFS report requirements

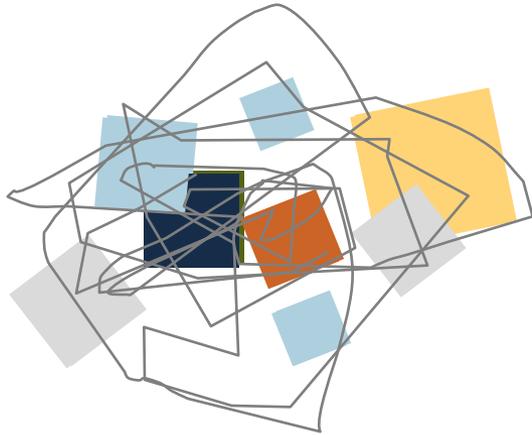
Duplication in DFS reporting requirements can happen not only across departments in the same authority, but also when authorities outside the financial sector have data needs.

In Tanzania nonbank mobile money providers report mobile money transactions to the Tanzania Communications Regulatory Authority (TCRA). They also report transaction data (in a different format) to the Bank of Tanzania (BoT).

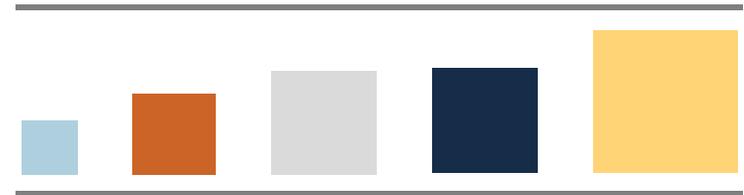
TCRA and BoT are working together to resolve this duplication and make the data collected by TCRA useful for DFS supervision conducted by BoT.



# Unstructured vs structured process to create reporting requirements



Informal and unstructured,  
limited to the department  
that requests the data



Formal, standardized procedures  
that involve coordination  
among multiple departments  
and authorities and consultation  
with the industry

# A standard, structured, formal process

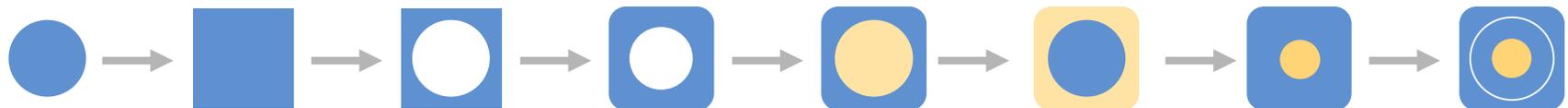
A formal standard process to create DFS reporting requirements helps:

- Ensure data standardization
- Avoid duplication
- Increase quality, transparency, and accountability
- Supervisors spend less post-reporting time with data cleaning/correction

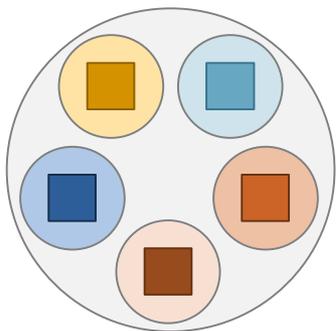
**Consultations** for reporting requirements, allow the parties to address challenges and agree on definition of all data points and data fields, which reduces room for misinterpretation.

**Testing periods** help set realistic implementation timelines and are particularly important when changing report templates, creating new requirements, or changing the data dictionary and the taxonomy, or validation rules.

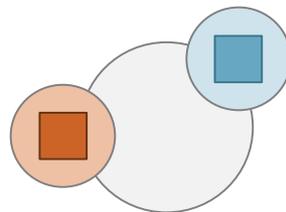
**Minor changes can have substantial consequences** for reporting institutions. Supervisors may consider setting a cut-off date and requiring new data only for new customers/accounts.



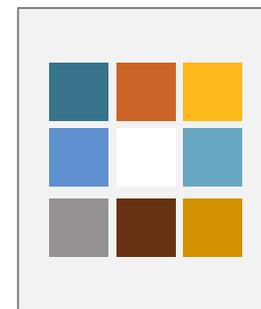
# Centralized data collection



A unit that functions as a central data source for all other departments, being responsible for prioritizing and implementing all periodic electronic data collection, including DFS data



Act as the interface between different departments when creating/changing reporting requirements and when implementing improvements in the data collection mechanism



Keep a single catalog of all regulatory reports imposed on all types of institutions helps to avoid duplicate requirements, which could help in estimating the total reporting burden

# A better process to create/manage reports

1 Define broad policy objectives

2 Define specific supervisory objectives

3 Identify information needed for each supervisory objective

4 Identify users and uses for each information needed

7 Draft the report template or other standardization instrument

6 Identify whether the data points are already collected somehow

5 Identify underlying data points needed to create the information needed

8 Coordinate across departments and authorities to agree on definitions, assign responsibility for collection and sharing, secure IT resources

9 Submit draft reporting requirements for external consultation

10 Provide a testing period

13 Enforce full implementation of the requirement

12 Monitor quality of the data reported and fix problems with the draft

11 Identify obstacles and agree on a realistic implementation timeline

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# Included in this research

## Desk research

Leading EMDE markets where DFS for financial inclusion have achieved scale or are growing rapidly

Developed economies for comparison purposes

EMDEs that have either or both agent regulations and e-money regulations

European Union (EU), because of its wealth of relevant material and the potential application of certain practices to DFS supervision in EMDEs

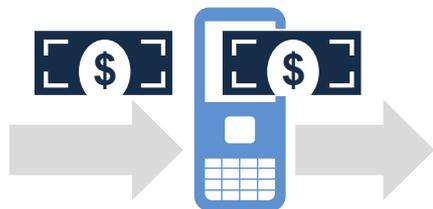
## In-person or phone interviews

Primary responsibility for supervision of the institutions that offer DFS (central banks and/or supervisory authorities). In Mexico, Consar (pensions regulator) was also included

Some DFS providers and providers of IT and consulting solutions



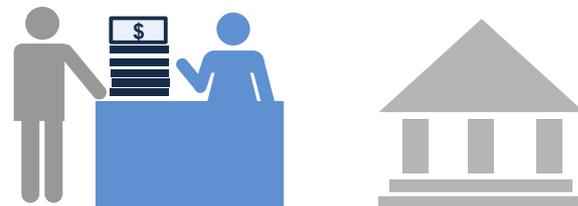
# DFS and e-money



**DFS:** any type of financial service or product delivered through any digital device and digital transactional platform, and provided by any type of bank or nonbank institution.

This paper uses a restrict definition to research regulatory reporting requirements:

- E-money issuers
- E-money transactions
- Use of agents by nonbanks and banks
- Electronic retail payment statistics



**E-money issuers include:**

- Dedicated nonbank e-money issuers
- Dedicated nonbank e-money issuers that are not directly regulated but that operate under the auspices of a licensed bank in bank-led models
- Nonbank e-money issuers that are not dedicated to financial services (e.g., mobile network operators that issue e-money)
- Limited-purpose banks that are dedicated to issuing e-money and providing payment services

# Other entities and inclusions

**Agents include:** E-money agents and agents used by banks and other regulated financial institutions in what is often referred to as agent banking.

In the case of Mexico, a few practices by the pensions regulator Consar, regarding agents of pension administrators, were studied.

## **Electronic retail payment statistics include:**

- Data traditionally collected by payments system oversight departments or units at central banks.
- These data include volumes and value of e-payment transactions and payment instruments (e.g., e-money accounts, debit and credit cards).

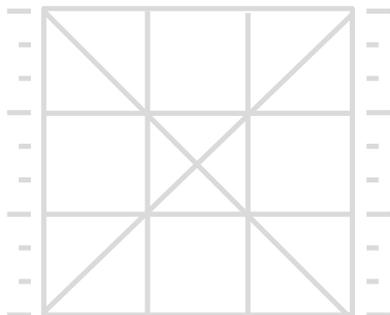
**Data collection mechanism:** A data collection mechanism is the combination of the systems and procedures used to compile, transform, validate, and report data (reporting institution's side), and the systems and procedures used to collect, validate, store, manage, and access the data (supervisor's side)

# Key terms

<b>Regulatory report or return</b>	A formal report, prepared according to reporting requirements previously defined by the authority, that the supervisory authority receives from institutions. The report may have aggregated data or granular data (or both).
<b>Report template</b>	A model regulatory report created by supervisory authorities. Reporting institutions need to fill in the template using manual or automated processes (or both). A template has several data fields that contain aggregated or granular data, in raw or standardized format.
<b>Data field</b>	Each data field in the report template needs to be filled in. Data fields can include one or more data points in raw or standardized format.
<b>Data point</b>	Specific data that need to be provided. Sometimes several data points are combined through formulas to fill in a data field. Data points in DFS reporting commonly represent aggregated data (e.g., total number of agents) but also can be granular data.
<b>Aggregated versus granular data</b>	DFS reporting requirements are usually high-level aggregated data, such as total outstanding e-money issued and total value of transactions, which are calculated through formulas defined by the supervisory authority or by the institution (e.g., total outstanding e-money issued equals the sum of all e-money client account balances at the end of the day prior to the reporting date, after all fees are deducted). Aggregated data can also be reported as an indicator, such as % of active e-money accounts. Granular data are presented in a higher level of detail. There are different levels of granularity. At the most granular level, data are similar to those that are generated on an ongoing basis by financial institutions in the course of their businesses (e.g., client tables, transaction tables, loan tables, access logs, etc.). Requiring a list of all agents and all transactions per agent, or a list of all e-money transactions, is considered granular data, even though this type of reporting requires some data aggregation. Both aggregated and granular data can be reported in raw or standardized formats.
<b>Standardized versus raw data</b>	Raw (or business) data are generated by the information systems of a reporting institution. Since institutions use systems that comply with the specifications of the IT vendor and/or the institution. Raw data are usually not comparable across institutions. Raw data are generated at the most granular level (e.g., client tables, transaction tables), and they also can be (and usually are) aggregated at some level for internal management purposes (e.g., risk management). Standardized data are raw data that have been put into a common format that is defined by the supervisory authority, including by using common definitions and formulas. Most data collected by financial supervisory authorities are standardized, but there are examples of collection of raw data for DFS supervision (both aggregated and granular).
<b>Data category and subcategories</b>	Data category refers to high-level fields in reporting templates that may be broken down into other data fields called subcategories. An example is total volume of transactions. This category can have several transaction types as subcategories, such as transfers, deposits, withdrawals, etc.

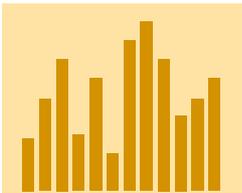


# Types data collected by DFS supervisors



Data can be quantitative or qualitative, and financial or operational.

Periodic reporting of DFS data in the researched countries focuses on operational data, while financial data, such as financial statements, are collected less frequently

	FINANCIAL	OPERATIONAL
Quantitative 	Financial statements (balance sheet, cash flow, income statement)  Financial ratios (capital adequacy ratio, liquidity ratio, and others)	<ul style="list-style-type: none"> <li>• Volume and value of transactions</li> <li>• Number of transaction points (e.g., agents, ATM, point of sale)</li> <li>• Number of accounts and total balances</li> <li>• Losses from frauds, consumer compensations</li> </ul>
Qualitative 	Explanations to financial statements	<ul style="list-style-type: none"> <li>• Policies and procedures</li> <li>• Description of frauds and actions taken, actions taken on consumer complaints, IT systems, risk management practices, accounts of service disruptions</li> </ul>

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# Findings on DFS reporting requirements

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Transparency is greater in advanced economies (and a few EMDEs) in the research

- Only a minority of countries publish report templates in their websites
- Most EMDEs do not detail the reporting requirements in their websites

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EMDE focus on e-money transaction data, advanced economies are more likely to focus on financial data of e-money issuer

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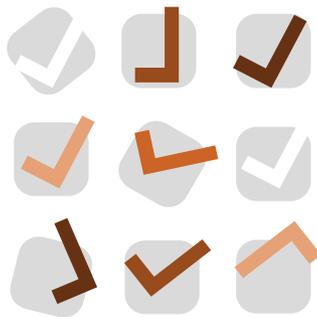
There is no single recipe for DFS report template that would work in multiple countries

- Broad DFS data categories do not vary much but sub-categories, e.g., transaction types, vary widely
- The combination of multiple sub-categories vary widely
- Key terms and definitions vary widely
- Periodicity varies

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Variations across countries might reflect differences in supervisory approaches and traditions, and varying supervisory priorities

# Weaknesses in DFS reporting requirements



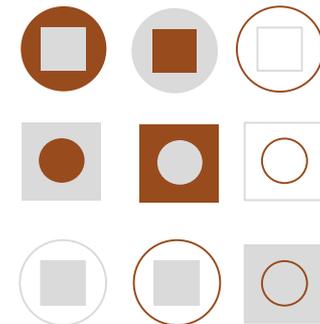
## Inconsistencies

Unclear or inconsistent use of key terms within report templates and across report templates



## Gaps

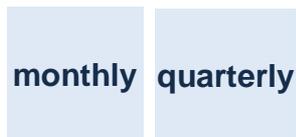
Gaps and inconsistency of consumer complaints reporting requirements across different types of institutions



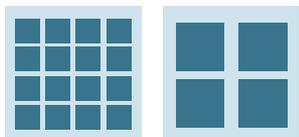
## Duplications

Banks subject to detailed reporting on agents while nonbanks are not, when there is no single agent regulation

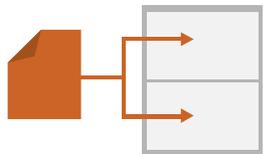
# Examples of duplication and gaps



**Example 1:** Regulation A requires **monthly** reporting of mobile money transaction volumes and values while Regulation B requires **quarterly** reporting of volumes and values of e-transactions



**Example 2:** An authority requires **granular data** on e-money transactions, while another authority requires **aggregated data** on e-money transactions



**Example 3:** An e-money issuer is required to send the same report to two different departments of the same authority



**Example 4:** A report requires total volume, value of transactions AND average size of transaction



**Example 5:** Gaps such as requiring breakdown of number of e-money customers by account level but failing to require the same breakdown for total outstanding value of e-money

# Impact of observed weaknesses

## The observed weaknesses can lead to:

- Higher compliance costs
- Inaccurate reported data
- Not comparable data across institutions
- More time spent by supervisor fixing data problems (“cleaning data”)
- Combination of multiple categories in report templates (e.g., transaction type broken down by location or type of account) often difficult to report
- Reduced effectiveness of DFS supervision



## How to address weaknesses

Better planning and a standardized process for creating regulatory reporting requirements. Technology can be an ally.

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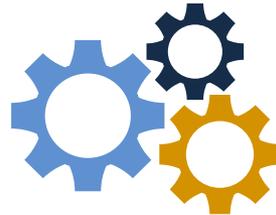
Technology and DFS Data

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# What DFS data are required?



Financial data on e-money issuers



Operational data on e-money issuers and e-money operations



Risky and suspicious transactions

# Financial data on e-money issuers



## Nonbank e-money issuers

Does not include commercial banks subject to full prudential reporting

Financial data (statements and indicators) most often collected annually, but in some countries quarterly or monthly

## Examples of other financial data:



Total  
outstanding  
e-money  
issued



Fees paid  
by clients  
and  
Fees paid  
by lenders  
and insurers



Balance and  
interest gained  
in pooled  
trust/escrow  
account



Interest  
distributed to  
customers

# Financial data on e-money issuers

Complete data set can be found in Annex



## Annually

Financial statements and indicators:

Income statement

Balance sheet

Capital adequacy

†Total outstanding e-money issued

## Quarterly

Total outstanding e-money issued

## Monthly

Total outstanding value of e-money issued

Total outstanding value of e-money issued by type of client\*

Fund safeguarding: Trust account balance, by bank holding the trust

Fund safeguarding: Interest earned in the trust account

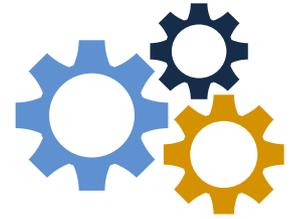
Financial statements and indicators:  
†Balance sheet

## Daily

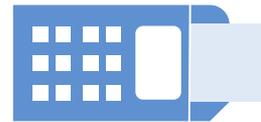
†Total outstanding e-money issued

†Trust account balance, by bank holding the trust

# Operational data on e-money issuers and e-money operations



Number and types of accounts and clients



Transaction data



Data on e-money agents

# Number and types of accounts

Complete data set can be found in Annex



## Quarterly

† Total number of e-money **accounts** registered

## Monthly

Total number of e-money **accounts** by account level\*\*

Total number of e-money **accounts** active

Total number of e-money **accounts** registered

† Total number of e-money **accounts** opened in the period

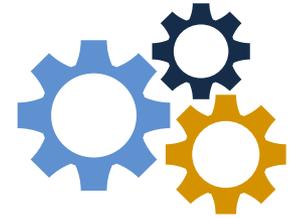
Total number of e-money **clients** active

Total number of e-money **clients** by type\*

Total number of e-money **clients** registered

Items in grey with † are not commonly reported at this frequency \*Legal/natural person \*\*Know Your Customer tier

# Transaction data



## Wide range subcategories identified across countries but...

- Most countries use only a few subcategories for transaction types
- Most countries do not require combination of multiple subcategories
- Higher number of sub-categories found in Sub-Saharan Africa
- A few EMDE require daily data



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# Transaction data on e-money

Complete data set can be found in Annex

## Annually

**Total transaction volume and/or value**  
(no breakdowns)

## Quarterly

**Total transaction volume and/or value**  
(no breakdowns)

†**Total by transaction type type**

†**Payments** (total only)

†**Cash out/withdrawal** (total only)

## Monthly

†**Total transaction volume and/or value**  
(no breakdowns)

**Total by transaction type type**

**Total by account type\***

**Cash in** (total only)

**Deposit:** government-to-person

†**Deposit:** incoming international remittance

**Payments** (total only)

†**Payments:** Utilities

**Payments:** Airtime top up

**Transfers:** (total only)

**Transfers:** Peer-to-peer

**Transfers:** Business-to-person

**Transfers:** Person-to-business

**Transfers:** Person-to-government

**Transfers:** Over-the-counter

**Cash out/withdrawal**  
(total only)

**Cash out/withdrawal**  
Nonfinancial operations\*\*

## Daily

†**Total by transaction type type**

Items in grey with † are not commonly reported at this frequency

# Data on digital credit and insurance



Nonbank e-money issuers distribute digital insurance and credit in exchange for fees or commissions. A couple of studied countries collect information on such products through the e-money issuer but...

- The **e-money issuer is not the provider of the products**
- The purpose of such data collection is not clear
- The e-money issuer should be required to provide data only on its own products and services

**On digital credit:** loan applications received, number and value of loan disbursements, total number and value of loan repayments, a list identifying all partner lender, fees collected from partner lenders.

**On digital insurance:** number and value of insurance policies sold through the e-money platform, number and value of insurance claims paid through e-money issuers, list identifying all partner insurers.

# Agent data



## Regulatory fragmentation impacts reporting requirements

Single agent regulation  
for banks and nonbanks



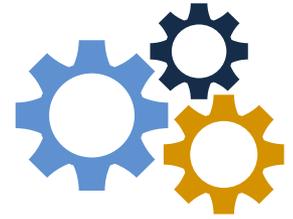
Simpler and more consistent  
reporting requirements

Separate  
regulations



Excessive reporting requirements  
for banks and some duplication

# Agent data



Agent data reporting focuses on numbers of agents, by some subcategories (mainly geographic location)



A few countries require GPS coordinates for each agent to be reported  
Only few countries require transactions by agent and by location



Only Pakistan requires number of agents by whether agent is

- Exclusive or non-exclusive
- Equipped with biometric device

Only Uganda requires monthly reporting of agents bank branch responsible for monitoring such agents

# E-money agent data

Complete data set can be found in Annex



## Monthly

Total number of agents (no breakdown)

Total number of agents by geographic location

Total number of agents by type: agent

Total number of agent points/outlets (no breakdown)

Total inactive agents

† Total number of agent points/outlets by geographic location

† Total number of agents by type: merchant

† Total number of agents by geographic location and type of agent

† Total active agents

# Bank agent data

Complete data set can be found in Annex



## Quarterly

† Total number of agents by type:  
subagent

## Monthly

Total number of agents (no breakdown)

Total number of agents by geographic  
location

Total number of agents by type:  
subagent

Total number of agent points/outlets  
by geographic location

Total value and volume of transactions  
by geographic location of the agent

Total value and volume of transactions  
by transaction types

† Total number of agent points/outlets  
(no breakdown)

† Total number of agents by type: agent

# Agent data



The Central Bank of Nigeria (CBN) has an agent banking database to provide details of all agents used by banks and mobile money operators. The database generates and assigns a unique code to each agent – not related to the codes assigned to agents by the providers themselves – and has details on the agent’s location, identification, status (active, inactive), and monthly transaction volumes and values. CBN is working to address challenges faced by institutions in providing information to this database.

# Risky and suspicious transactions

Almost all studied countries require statistics on suspicious transaction reports (STRs), which are sent to the financial intelligence unit, and statistics and descriptions of:

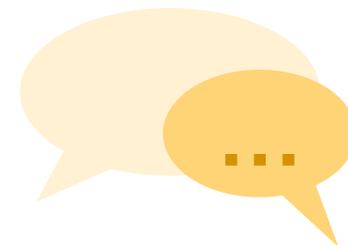
- incidences of frauds
- data security breaches
- service disruptions
- transaction reversals

Only a few require reporting of volumes and values of failed and pending transactions

In several cases this type of requirement was duplicated in e-money issuer regulations, and regulations for electronic channels or transactions, and agent regulations



# Additional qualitative data on a regular or ad-hoc basis



**In France**, nonbank e-money issuers submit an annual report on internal controls

**In Indonesia**, nonbank e-money issuers need to present an annual business plan and an IT audit report every three years.

**In Luxembourg**, nonbank e-money issuers provide on an annual basis:

- Report on financial position, explanatory notes, management report
- Proposed allocation of results (e.g., distribution of dividends)
- Internal auditor's report
- Management report on internal controls
- Annual report of the compliance officer

# Other qualitative data



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Business plans

Financial projections

Policies and procedures

Operation manuals

Marketing materials

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Trust account agreements

Board meeting minutes

Contingency and continuity plans

Third-party data was not so common, only a few reported cases

- media monitoring
- third-party surveys
- results of mystery shopping

---

Explanations about resolution of consumer complaints

Outsourcing agreements (e.g., with agent network managers)

# Electronic retail payments statistics

Often collected by the payments system oversight unit at central banks

Covers banks and nonbanks, all types of electronic retail payments

Relatively standardized set of indicators collected, across countries but...

**Often there is duplication and lack of harmonization** at country level of terms with DFS data reporting requirements managed by other departments or in different regulations (e.g., e-money and agent regulations)



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# Standardization of DFS data



**format**

$$(((A+B)/B)*C)$$

**=**

**{< formulas >}**



**content**



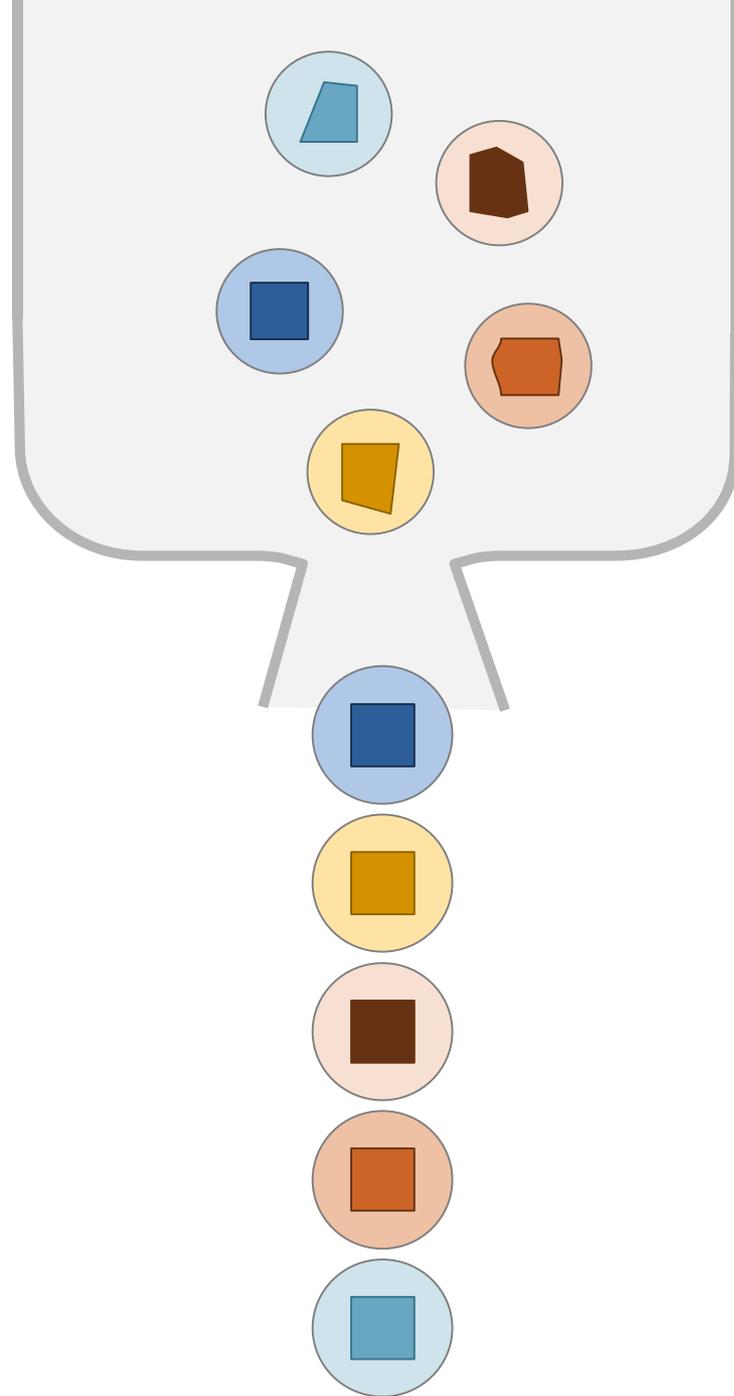
**definitions**

**daily**  
**monthly**  
**quarterly**  
**bi-annually**  
**annually**  
**frequency**

# Standardization is crucial

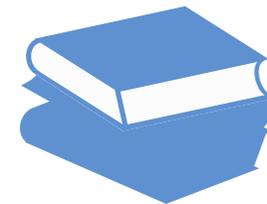
## Standardization is crucial for:

- Ensuring data quality
- Allowing comparative analyses
- Optimize the supervisor's use of time
- Essential for effective DFS supervision
- Only a couple of researched countries collect non-standardized DFS data
- Report templates are the most common standardization tool for DFS reporting, but they are not sufficient



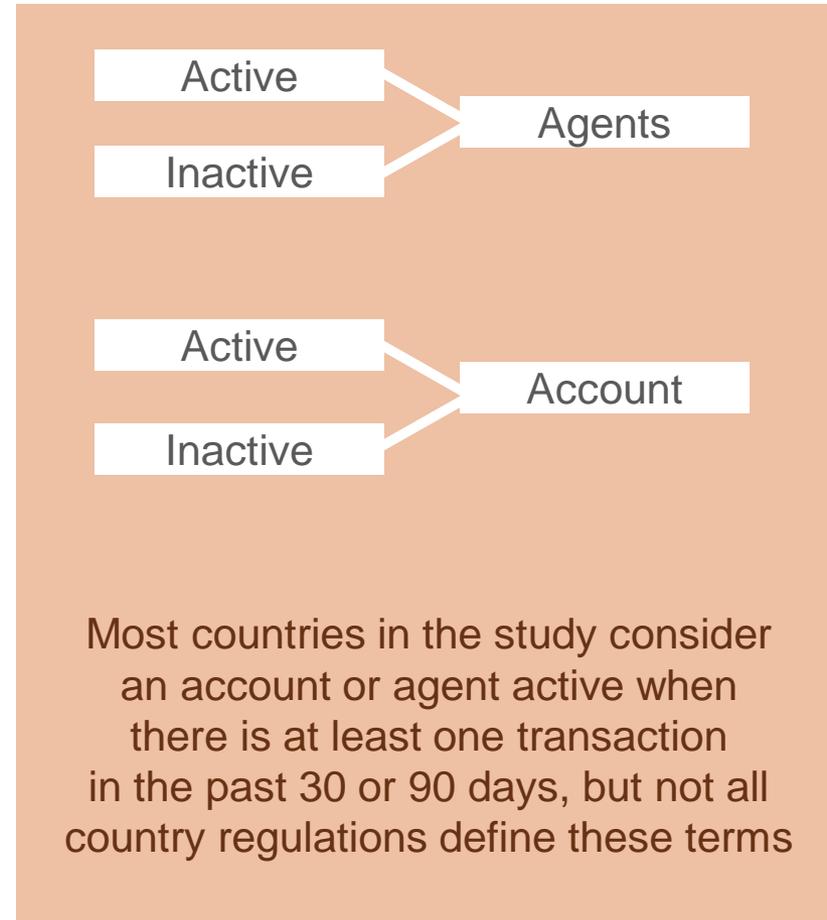
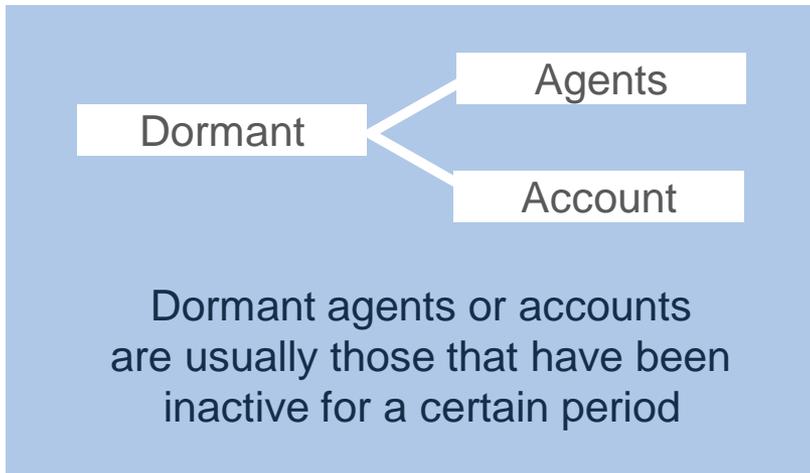
# Key terms to be standardized

These words can mean different things for different institutions



Agent	Mobile wallet	Transaction types	Client types
Agent point	E-money account	Sorting transaction categories	Account types
Agent till	Mobile money account	Cash-in	Retail (final)
Transaction device	Location	Cash-out	Customer/ accounts
Cash point		Transfers	Wholesale (corporate) customers (includes agent and merchant accounts)
Super-agent			
Master agent			
Merchant			

# Key terms to be standardized



# Useful tools for standardization

## Dictionary

A document in which the definitions of all fields of a regulatory report template are organized. It is closely related to taxonomy.

## Taxonomy

Closely related to dictionary. It determines fundamental rules for regulatory reports. For instance, for each field of a regulatory report (and included in the dictionary) the taxonomy determines attributes and interrelationships. These attributes and interrelationships reflect regulations as well as accounting rules and are the basis for programming the IT codes that automate regulatory reporting at reporting institutions.



Dictionaries and taxonomies are especially important for young and fast-growing industries such as DFS for financial inclusion in EMDEs

- Lack of common industry standards
- Fast evolving business practices

Working out the details of dictionary/taxonomy can reveal imprecisions in regulations and can help the parties solve such imprecisions

# Additional reporting guidance

**Many DFS supervisors provided additional guidance for reporting institutions**

Instructions

Compilation of regulatory requirements

Methodological notes

Interpretation of key requirements

Detailed validation rules and formulas

Filing rules such as periodicity, reporting channels or tools

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# What are granular data?

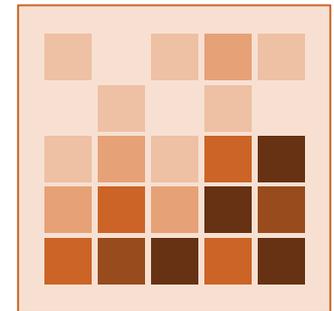
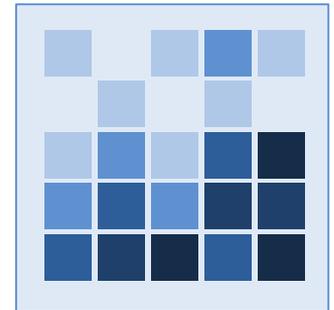
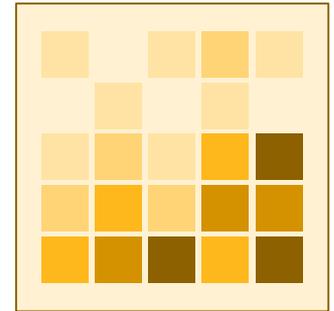
Report templates have data fields e.g., total outstanding e-money issued

Data fields can be traced to the underlying raw granular data in an institution's IT systems

Most supervisors require data to be aggregated from its original granular form into indicators such as total outstanding e-money issued

Reporting such data entails transforming and aggregating raw, granular data—a process that can be automated or done manually.

Many data fields in a report template require the exact same underlying granular data



# Advantages of granular data

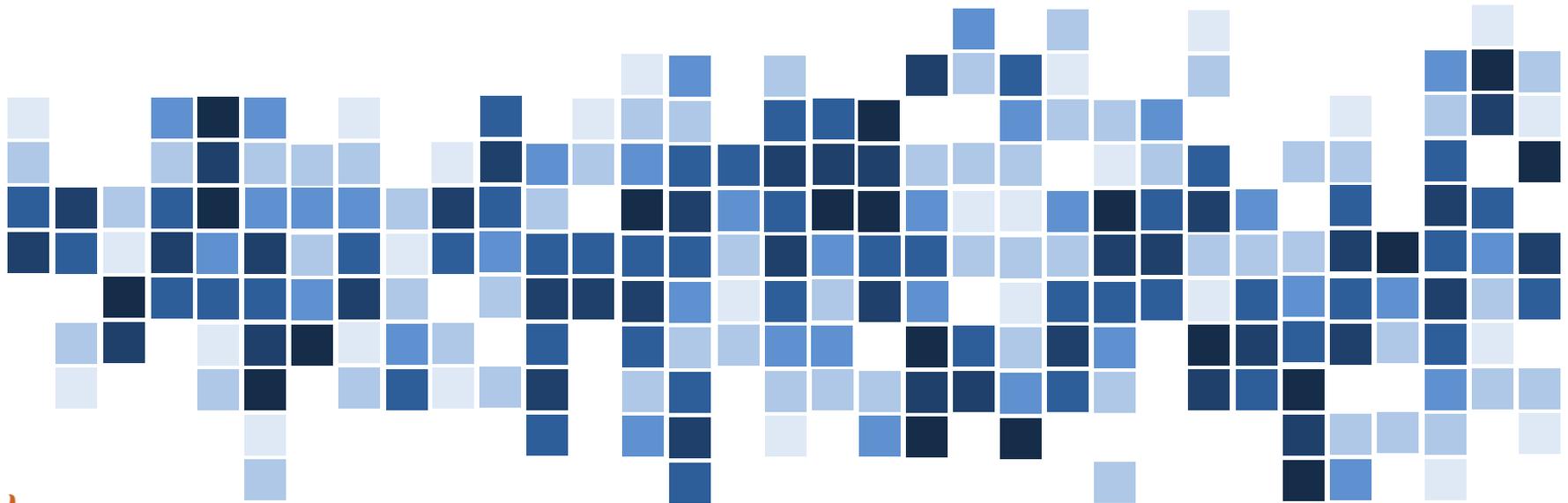
If adequate analytical skills and resources are available

Greater flexibility for richer supervisory insights

- Supervisors calculate any desired indicator
- Ensure calculations are correct and standardized
- Limitless number of analyses
  - Manipulating, combining
  - Finding relationships across data points
  - not constrained by predefined indicators

Most of today's EMDE DFS supervisors not accustomed to granular data

Depending on the data collection mechanism, granular data could reduce compliance costs for institutions



# Disadvantages of granular data



Managing a great deal of data

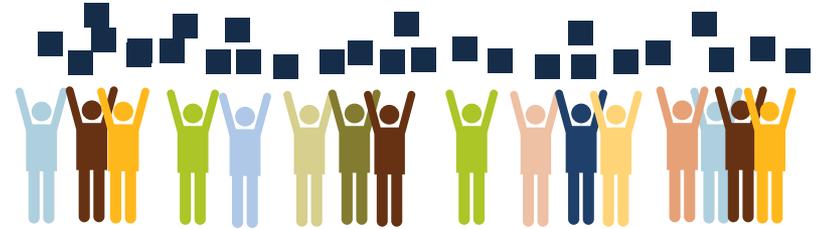
Need of increased storage capacity

Need for different analytical tools and skills

Higher transfer speeds to receive the data

If using traditional report templates

- Can become cumbersome for institutions
- Can worsen data quality



To create standardization and validation rules and conduct analyses, supervisors need a profound understanding of regulated businesses

Some supervisors may lack power to gather granular data

There could be resistance by reporting institutions

Potentially changing public expectations about the supervisor's role

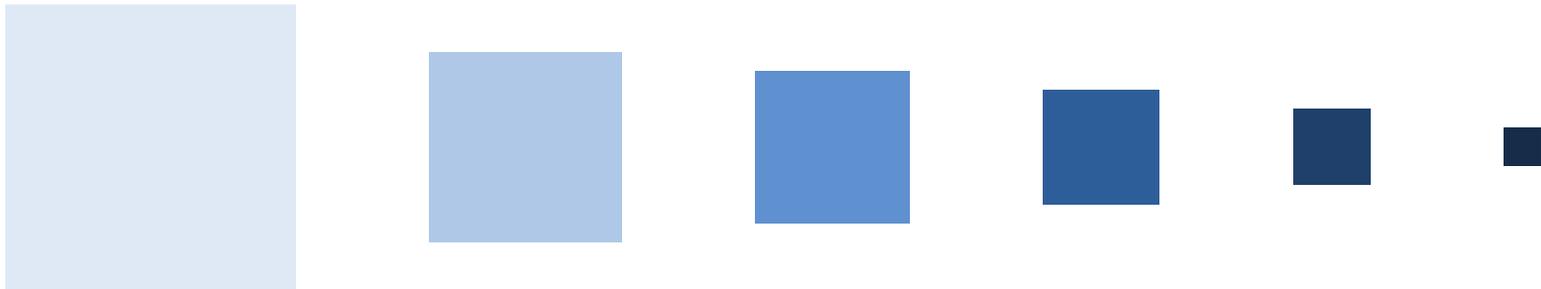
# Are granular data needed?

More and more detailed data are not always better or needed

The vast majority of countries collect only aggregated DFS data

Excessive data collection without clear objectives or analytical capacity may hurt the supervisor's credibility

Excessive data collection could trigger accusations of abuse of power



# Granular DFS data in interviewed countries

Country	Authority	Types of data
Bangladesh	Bangladesh Bank	Monthly reporting of all mobile financial services transactions above Tk 20,000 (approx. US\$250), by transaction type, showing the name of the account holder, the amount transferred, and the recipient of the funds.
Mexico	Consar	Near real-time access to individual transactions conducted by pension administrators at the IT system of the switch used by pension administrators, with information on the pension agent who conducted the transaction (transactions include account opening, transfer of balances across pension administrators, withdrawals, deposits, etc.), GPS location of the agent at the time of the transaction, client information, and other details.
Mexico	CNBV	Monthly reporting of the number, type, and value of transactions conducted at each agent, with agent details (e.g., location).
Nigeria	CBN	Daily reporting of all individual mobile money transactions by each mobile money operator.
Pakistan	SBP	Monthly reporting of the number, type, and value of branchless banking transactions per each agent. <sup>1</sup>
Rwanda	BNR	Near real-time access to individual mobile money transactions at the IT systems of mobile money operators.
Tanzania	TCRA	Near real-time access to individual mobile money transactions at the IT systems of mobile money operators.

<sup>1</sup>In Pakistan, branchless banking transaction means a transaction conducted at agents of bank institutions, often through mobile phones, and electronic transactions between branchless banking accounts, according to the Branchless Banking Guidelines

# Questions to drive decision on granularity

How would granularity impact compliance costs?



Is there legal impediment for collecting granular data?



Is there analytical capacity to standardize, validate, and analyze granular data?



What extra insights could granular data provide?



Would the supervisor be risking its reputation?

Would a reform of the data collection mechanism be required to avoid excessive compliance costs and ensure data quality?



“Processes which limit the need for manual operations are considered to be best practice.”

—EBA 2017

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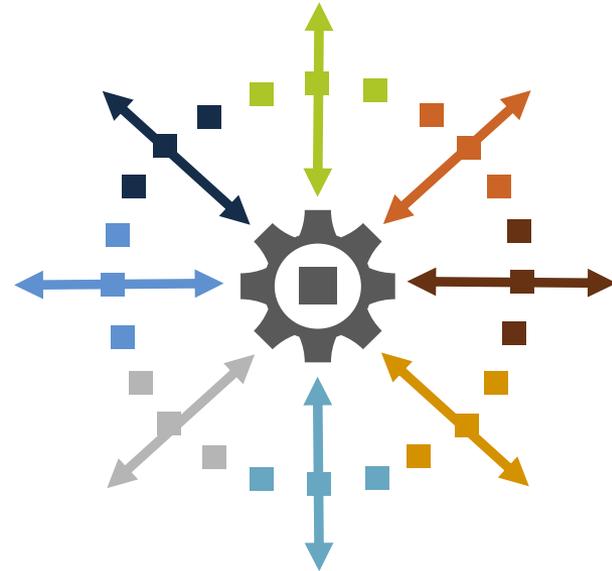
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# Types of collection mechanisms

- Separate files (Excel, PDF, Word, TXT, etc.) that are sent electronically (email attachments, web portal, or another file transfer system) or provided in hard media (e.g., memory stick)
- Automated processes or a mix of automated and manual processes
- Input approach, in which sets of granular data are uploaded automatically by the institution into a database at or accessed by the supervisor.
- Pull approach, in which raw granular data are extracted (pulled) by the supervisor from the institution's IT systems.



# Manual processes persist

Less than half of the largest global financial institutions have the data architecture and IT infrastructure needed to automate data aggregation and reporting

—BCBS 2015

IT challenges and regulatory impediments often make aggregation of risk data a manual, labor-intensive task.

—IIF 2016

# Reasons for using manual processes to report regulatory data

- Multiple systems (e.g., product systems or modules, AML/CFT, customer care, core banking, mobile money, etc.).
- Systems that are incompatible with the system used by the compliance unit to fill in the report templates.
- Reporting formats that create difficulties given the IT architecture of an institution.
- Systems housed at different departments or outside the institution (e.g., AML/CFT, customer care).
- Gaps or errors in the automated aggregation and standardization of raw granular data.

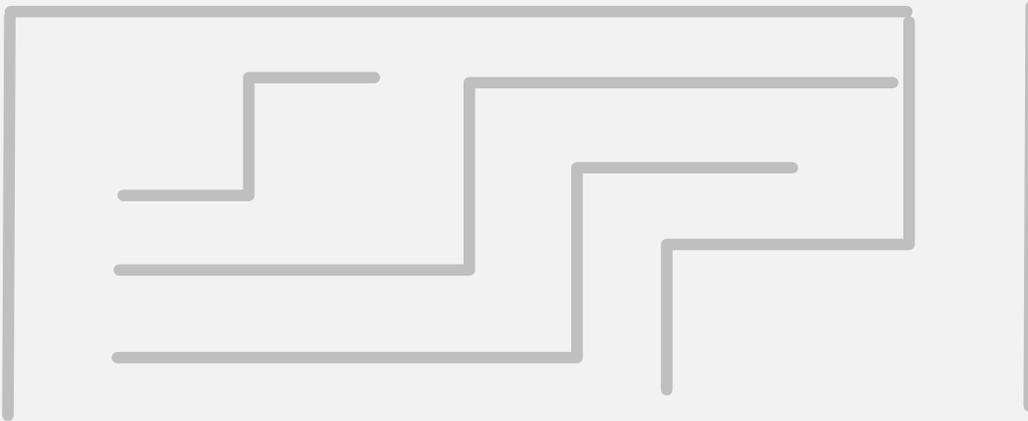
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Difficulties may also be caused by the system put in place by the supervisory authority, such as reporting portals.

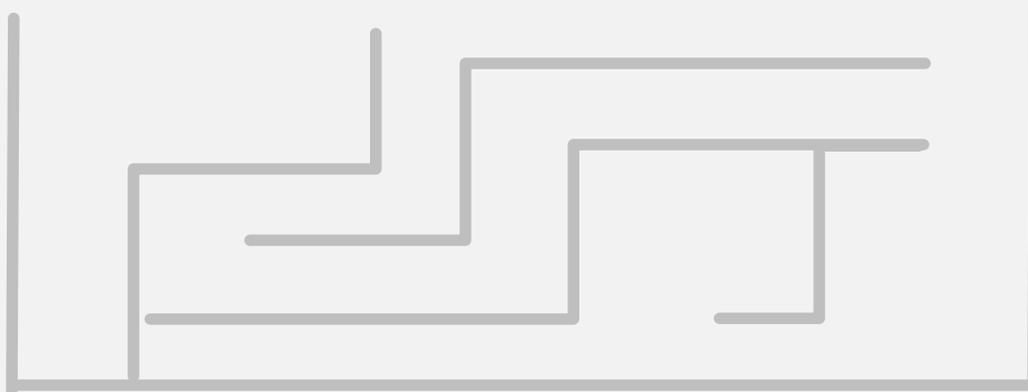
—Office of Financial Research 2015

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# Automation is easier for small institutions



Small and less complex institutions with a lean staff structure are able to move more easily toward, and benefit from, fully automated reporting processes



# Quality assurance and validation

All the countries in the study reported that they had a validation process at both the reporting and the collecting ends.

- Variation on the scope and level of automation
- Some supervisors not informed on how institutions validate their DFS data before reporting
- Institutions use a mix of automated and manual validation procedures not defined by common rules set by the supervisor

Supervisory authorities conduct validation checks after receiving the reports, with varying levels of sophistication.

Systems in advanced economies and a few EMDEs allow for more complete and complex automated validation checks

**Good automated validation can be demanding in terms of resources**



# Examples of validation checks

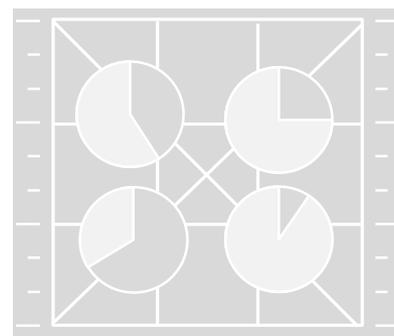
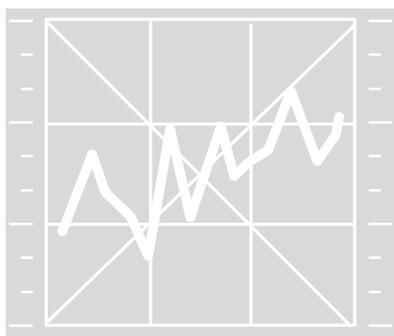
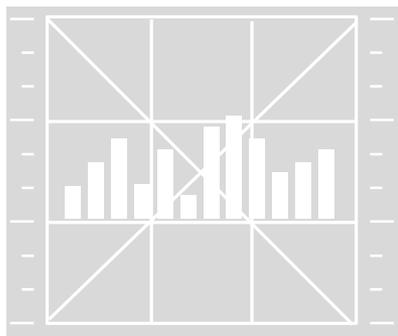
**Check receipt** of all reports, modules in a report, by due date

**Check for data completeness** (e.g., all fields filled out)

**Check for correctness:** pre-established validation rules, formulas and relationships among data fields

## Consistency checks:

- Consistency and plausibility within the same report
- Consistency and plausibility compared with previous reports
- Consistency and plausibility compared with other reports in same period
- Horizontal analysis (comparison with other institutions)



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“Documenting the validation process and related rules, including by describing the IT tools used and the standard procedural steps (e.g., to resolve data quality issues) can also help DFS supervisors improve data quality.”

—EBA 2017

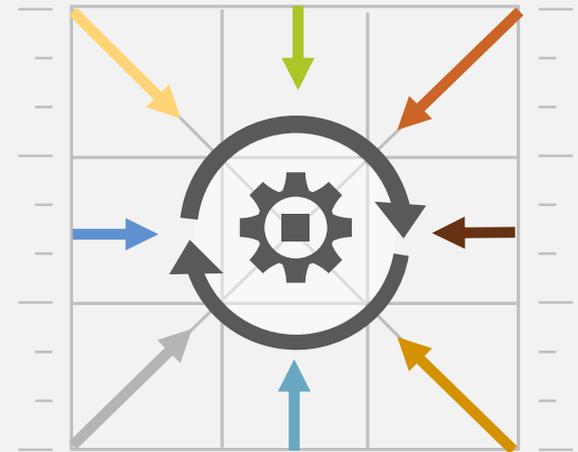
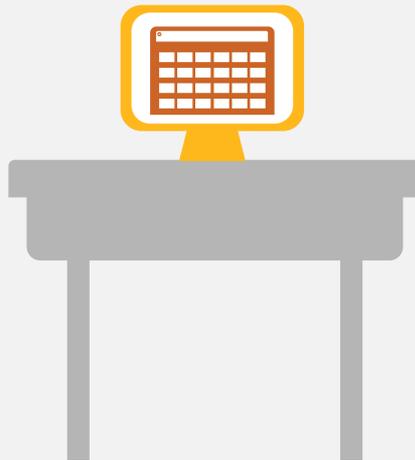
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# Automating submission management



Managing regulatory submissions is less time-consuming and more effective when using IT tools. In Europe, most supervisors keep automated controls of regulatory submissions

In studied EMDEs controls of submissions are mostly done manually using Excel spreadsheets.



Automating submission management involves developing IT systems to collect, store, and periodically update master data.

“Technology advances rapidly, giving rise to opportunities and challenges.”

—Jon Nicolaisen, Deputy Governor of Norges Bank 2016

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# Global rethinking of supervision



Global rethinking goes beyond DFS supervision

Major shift is imminent toward data-driven, forward looking

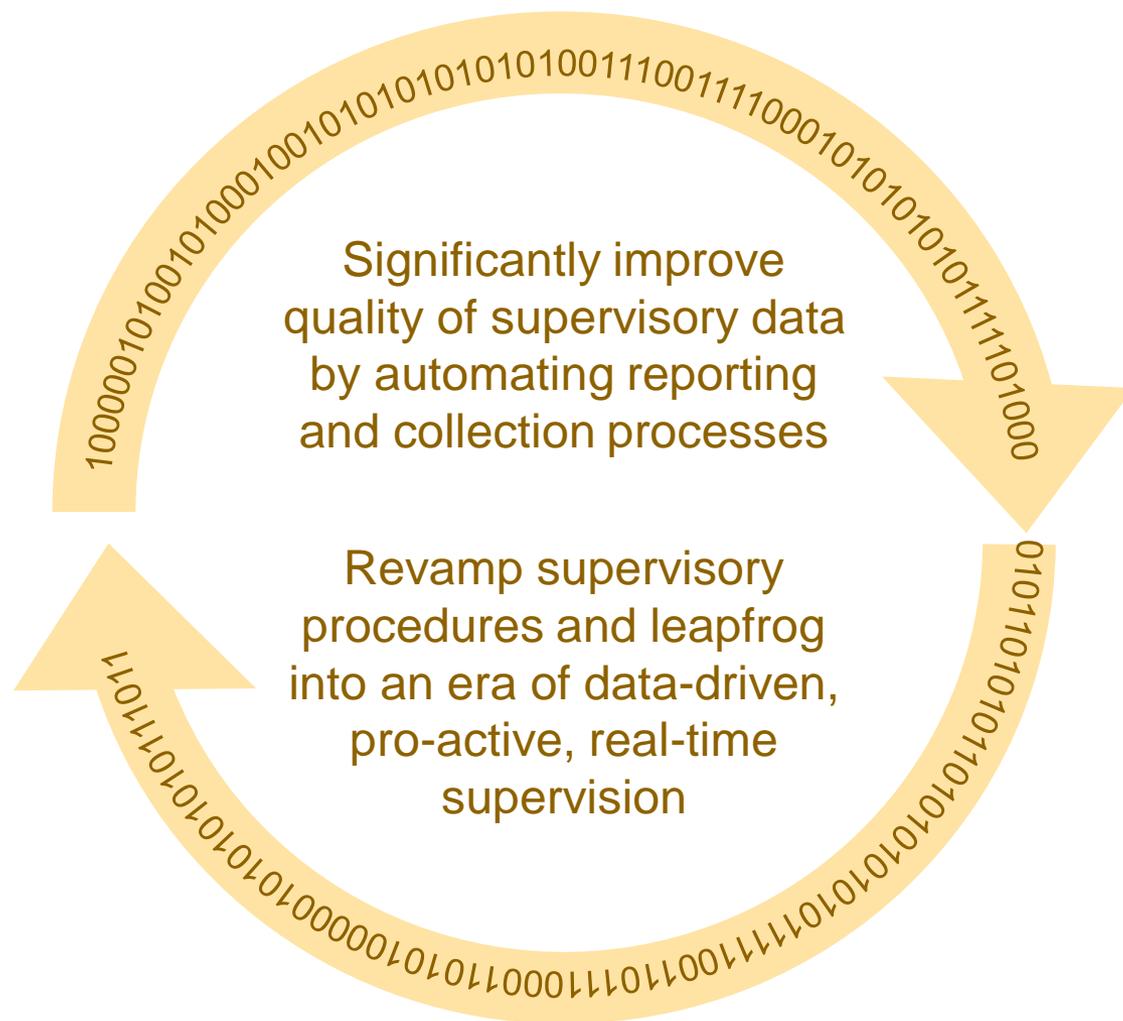
# Emerging supervisory approaches, require better regulatory data



**The higher the level of data granularity, frequency, and scope, the greater the need to reform the data collection mechanism.**

**RegTech and SupTech offers solutions for data reporting and collection.**

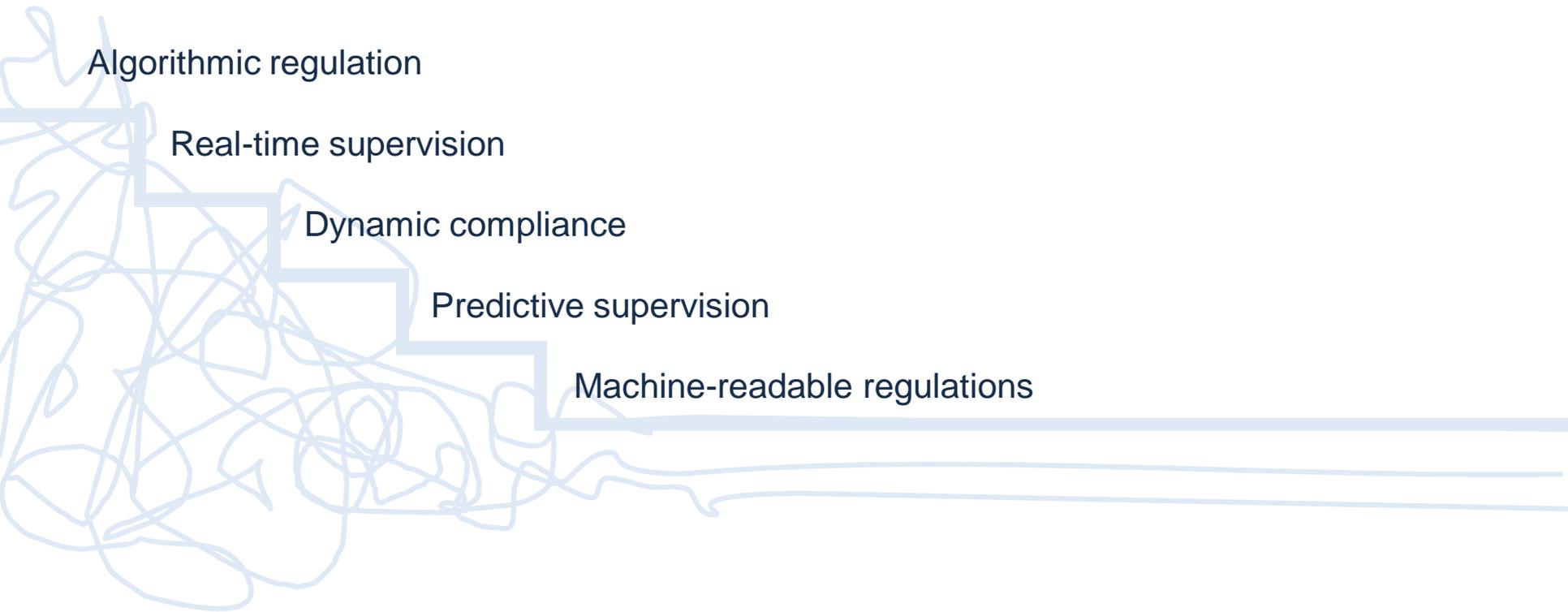
# RegTech and SupTech create opportunities to:



RegTech and SupTech solutions are a great opportunity for DFS supervisors and financial inclusion

# The future, transformed

**RegTech and SupTech offer potential to transform scope, procedures and techniques in financial supervision**



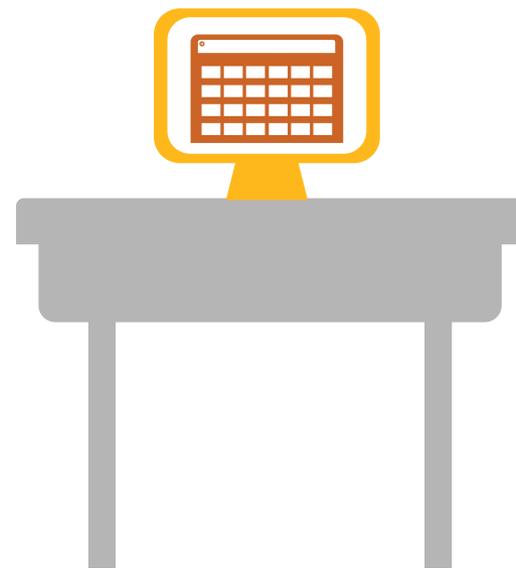
# Disadvantages of report templates

Most common approach is to use standard report templates in Excel, TXT, XBRL, etc. The current focus is on documents/reports; not the data that are needed.

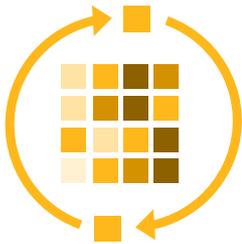
## Downsides of the template-based approach:

- Limited or no flexibility for supervisory analyses
- High costs of adding granular data or widening the scope of collection
- High costs and complexity of changing requirements
- Inconsistency of indicators across reports
- Errors in calculations and differences in interpretation of data fields
- Missing data fields
- High numbers of report templates with duplication

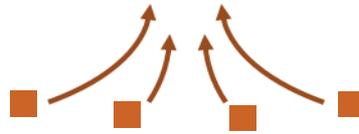
**The downsides of aggregating data also apply**



# From templates to tech-fueled alternatives



Data input approach



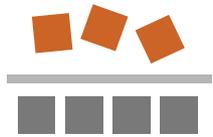
Data pull approach

■ 00100111  
■ 01010111  
■ 01010001  
■ 00111111  
■ 01010101

Reporting utilities

# Austria's data collection reform

New granular data collection mechanism integrated data needs from central bank and the supervisory authority, and did away with traditional report templates to fully automate collection



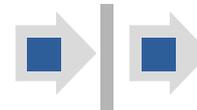
Passive data is less burdensome for both sides and boasts better response times in case of ad hoc requests



Reduction of costs for the whole market may be used to apply new requirements and for quality assurance



More clarity regarding definitions and “automatically” higher quality through Basic Cube



Consistency of input- and output data (internal and external reporting)



Multi-dimensional cubes allow the re-use of data for different needs



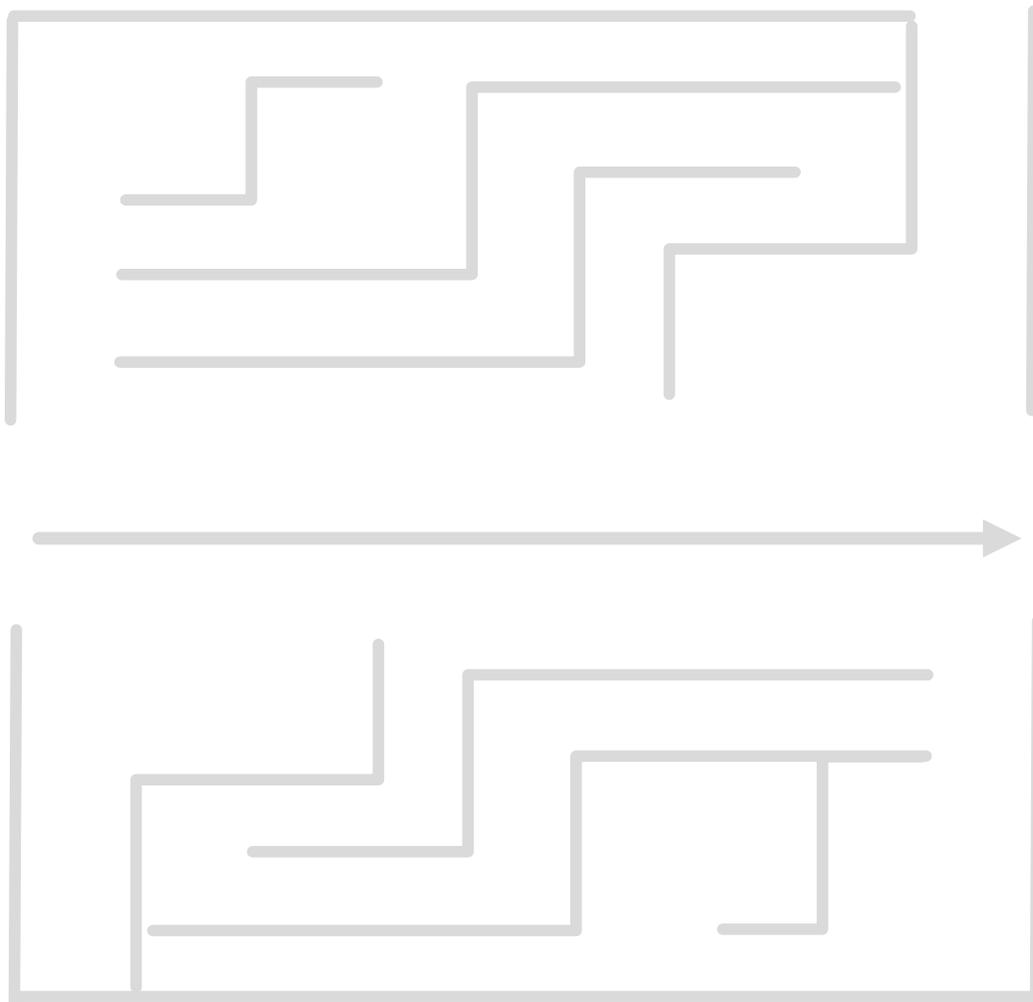
More flexibility in reporting and analysis

# Major overhauls, quickly with fewer issues

**EMDEs** lack heavy legacy systems, practices, infrastructure, and fully developed regulatory and supervisory frameworks

This will help EMDEs **leap into the future with RegTech and SupTech**

Gradual steps taken by, and the approaches currently adopted in, advanced economies may not be necessary for EMDEs



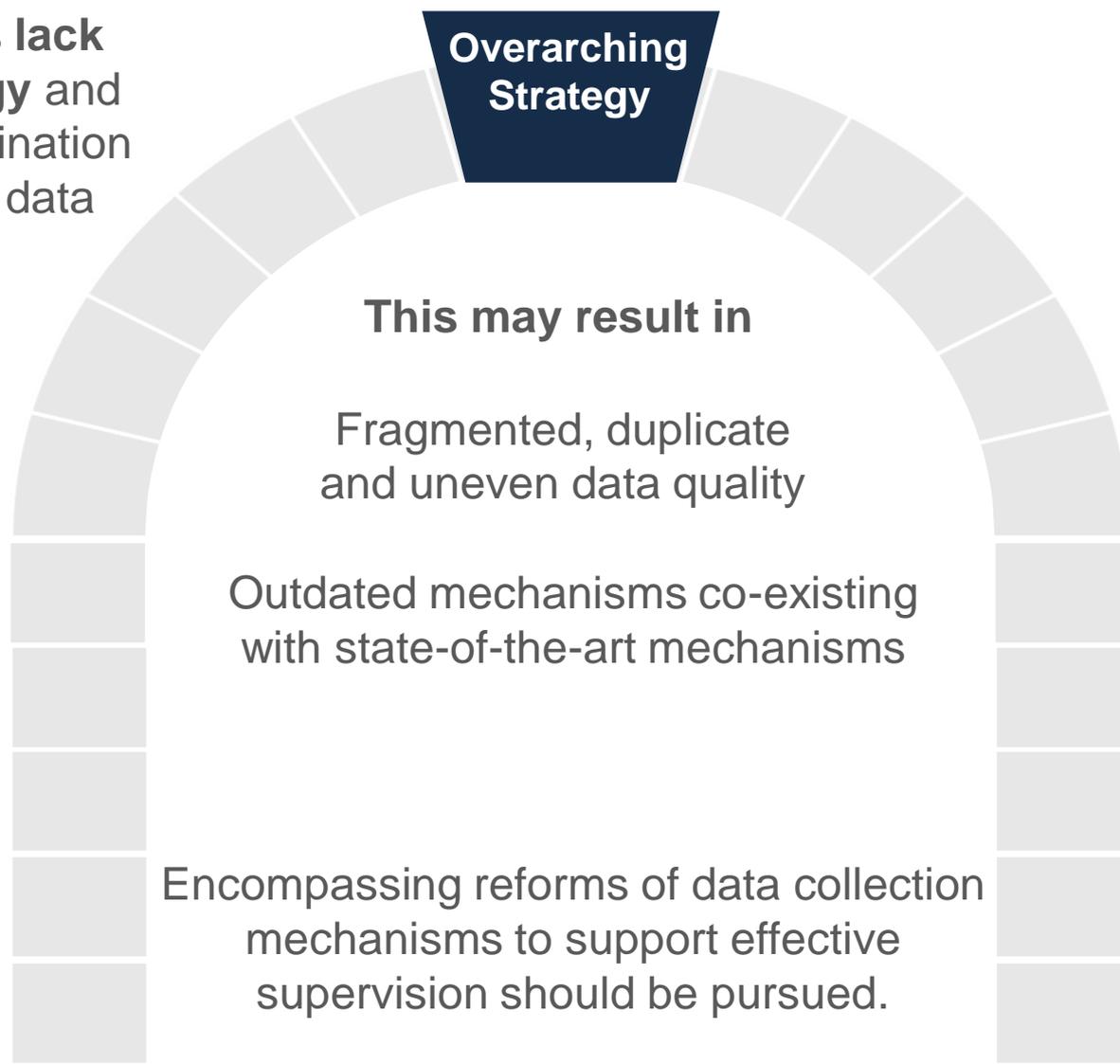
# Hurdles to new solutions

Some RegTech and SupTech solutions rely on technologies that may not be well-understood, well-accepted, or legally permitted in certain EMDEs, such as cloud computing.



# DFS data as part of wider strategy

Some EMDE authorities **lack an overarching strategy** and interdepartmental coordination for improving regulatory data beyond DFS data.



# Data collection and analytical capacity

Improving DFS or any data collection will bring limited benefit if there is no **adequate analytical capacity** at supervisory authorities to transform the data into supervisory intelligence.

Capacity may be lacking to map data needs in the first place, and to standardize data effectively.

# What is the big picture?



Look at a country, as a whole, to assess whether improvements are needed and whether synergies can be exploited across authorities involved in collecting and using DFS data

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# Financial data on e-money issuers

Darker color means most common periodicities. No color means no country has that periodicity for that requirement.

\*Just one country has the requirement; \*\*Only two countries have the requirement

	Yearly	Quarterly	Monthly	Weekly	Daily
<b>Financial statements and indicators</b>					
Balance sheet					
Income statement		*	**		
Capital adequacy		*	*		
Fee revenues		*	*		**
<b>Outstanding value of e-money issued</b>					
Total outstanding e-money issued				*	
Average outstanding in the period		**	*		
Peak outstanding during reporting period*			*		
Total outstanding by geographic location*			*		
Total outstanding by account level (KYC tier)*		*	*		
Total outstanding by type of client (legal/natural person)	*	*			
Total value in inactive accounts		*			
Total value in dormant accounts		*	**		
<b>Fund safeguarding</b>					
Trust account balance, by bank holding the trust				*	
Interest earned in the trust account	*			*	*
Authorized investments	*		*	*	

# Number and types of accounts

Darker color means most common periodicities. No color means no country has that periodicity for that requirement.

\*Just one country has the requirement; \*\*Only two countries have the requirement

	Yearly	Quarterly	Monthly	Daily
<b>Number of e-money clients</b>				
Total registered	*	*		
Total active	*			
Total by type (legal/natural person)	*	*		
Total by gender			*	
<b>Number of e-money accounts</b>				
Total registered	**			*
Total opened in the period				
Total active		*		
Total inactive		*	*	
Total dormant		*	**	
Total by gender			*	
Total by account level (KYC tier)				

# Transaction data on e-money

Darker color means most common periodicities. No color means no country has that periodicity for that requirement.

\*Just one country has the requirement; \*\*Only two countries have the requirement

	Yearly	Half-Yearly	Quarterly	Monthly	Daily
<b>Transaction value (\$) and volume (#)</b>					
Total only (no breakdowns)					
Total by transaction type		*			
Total by account type (customer/agents, legal/natural person)					*
Total by transaction type and geographic location				**	
Total by transaction type and type of channel (agent, ATM, point of sale, mobile, internet)	*	*	*		
<b>Examples of transaction types for reporting of transaction value (\$) and volume (#)</b>					
Cash in (total only)			**		*
Deposit—government-to-person (G2P)			*		
Deposit—incoming international remittance					
<b>Payments (total only)</b>					
Payment—utilities					
Payment—loan repayment				**	
Payment—airtime top up					*
<b>Transfers (total only)</b>					
Transfer—peer-to-peer			**		*
Transfer—person-to-business or person-to-government					
Transfer—business-to-person					
Transfer—bank to e-money account and vice-versa				**	
Over-the-counter					*
<b>Cash out/withdrawal (total only)</b>					
Cash out—loan disbursement, insurance claim, other				**	*
Nonfinancial operations (enquiries, loan applications, account opening, etc.)			*		

# Example: E-money agent data

Darker color means most common periodicities. No color means no country has that periodicity for that requirement.

\*Just one country has the requirement; \*\*Only two countries have the requirement

	Yearly or half yearly	Quarterly	Monthly
<b>Total number of agents (no breakdown)</b>	**	**	
<b>Total number of agents by subcategories</b>			
by geographic location	*	*	
by type of service delivered			**
by geographic location and type of service delivered			**
by geographic location and type of agent			
by type—merchant			
by type—super-agent			**
by type—subagent			**
by type—agent			
<b>Total added/terminated in reporting period</b>		*	**
<b>Total active</b>			
<b>Total inactive</b>			
<b>Total number of agent points/outlets (no breakdown)</b>			
<b>Total number of agent points/outlets by geographic location</b>			

# Example: Bank agent data

Darker color means most common periodicities. No color means no country has that periodicity for that requirement.

\*Just one country has the requirement; \*\*Only two countries have the requirement

	Yearly or half-yearly	Quarterly	Monthly
<b>Total number of agents (no breakdown)</b>	*	**	
<b>Total number of agents by subcategories</b>			
by geographic location	*	*	
by type of service delivered			**
by geographic location and service delivered			**
by geographic location and type of agent			**
by type—merchant			**
by type—super-agent			*
by type—subagent			
by type—agent			
by type—type of commercial establishment			*
<b>Total added/terminated in reporting period</b>			**
<b>Total number of agent points/outlets (no breakdown)</b>		**	
<b>Total number of agent points/outlets by geographic location</b>		*	
<b>Total value and volume of transactions through bank agents (no breakdown)</b>			**
<b>Total value and volume of transactions by subcategories</b>			
by transaction types		**	
by each agent		*	**
by agent point/outlet			*
by account level (KYC tier)			**
by geographic location of the agent			
<b>Average transaction size (no breakdown)</b>			*

# Bank agent data

Darker color means most common periodicities. No color means no country has that periodicity for that requirement.

\*Just one country has the requirement; \*\*Only two countries have the requirement

	Yearly or half-yearly	Quarterly	Monthly
<b>Total number of agents (no breakdown)</b>	*	**	
<b>Total number of agents by subcategories</b>			
by geographic location	*	*	
by type of service delivered			**
by geographic location and service delivered			**
by geographic location and type of agent			**
by type—merchant			**
by type—super-agent			*
by type—subagent			
by type—agent			
by type—type of commercial establishment			*
<b>Total added/terminated in reporting period</b>			**
<b>Total number of agent points/outlets (no breakdown)</b>		**	
<b>Total number of agent points/outlets by geographic location</b>		*	
<b>Total value and volume of transactions through bank agents (no breakdown)</b>			**
<b>Total value and volume of transactions by subcategories</b>			
by transaction types		**	
by each agent		*	**
by agent point/outlet			*
by account level (KYC tier)			**
by geographic location of the agent			
<b>Average transaction size (no breakdown)</b>			*

# Electronic retail payments statistics

Number of transaction points/devices (e.g., ATM, POS, agents, payments terminals, sometimes broken down by geographic location and available functions [e.g., whether ATMs allow deposits])

Number of transaction accounts (e.g., credit card, debit card, e-money, prepaid cards, internet and mobile banking [i.e., subscriptions to internet/mobile banking service])

Value and volume of transactions

By a few types of transactions and payments instrument (e.g., deposits, withdrawals, enquiries, transfers, merchant purchases by instrument [e-money, electronic fund transfers, cards])

By type of channel and payment instrument (e.g., POS [agent], POS [merchant], ATM, internet banking, e-commerce, mobile phone-based transaction at agents)

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