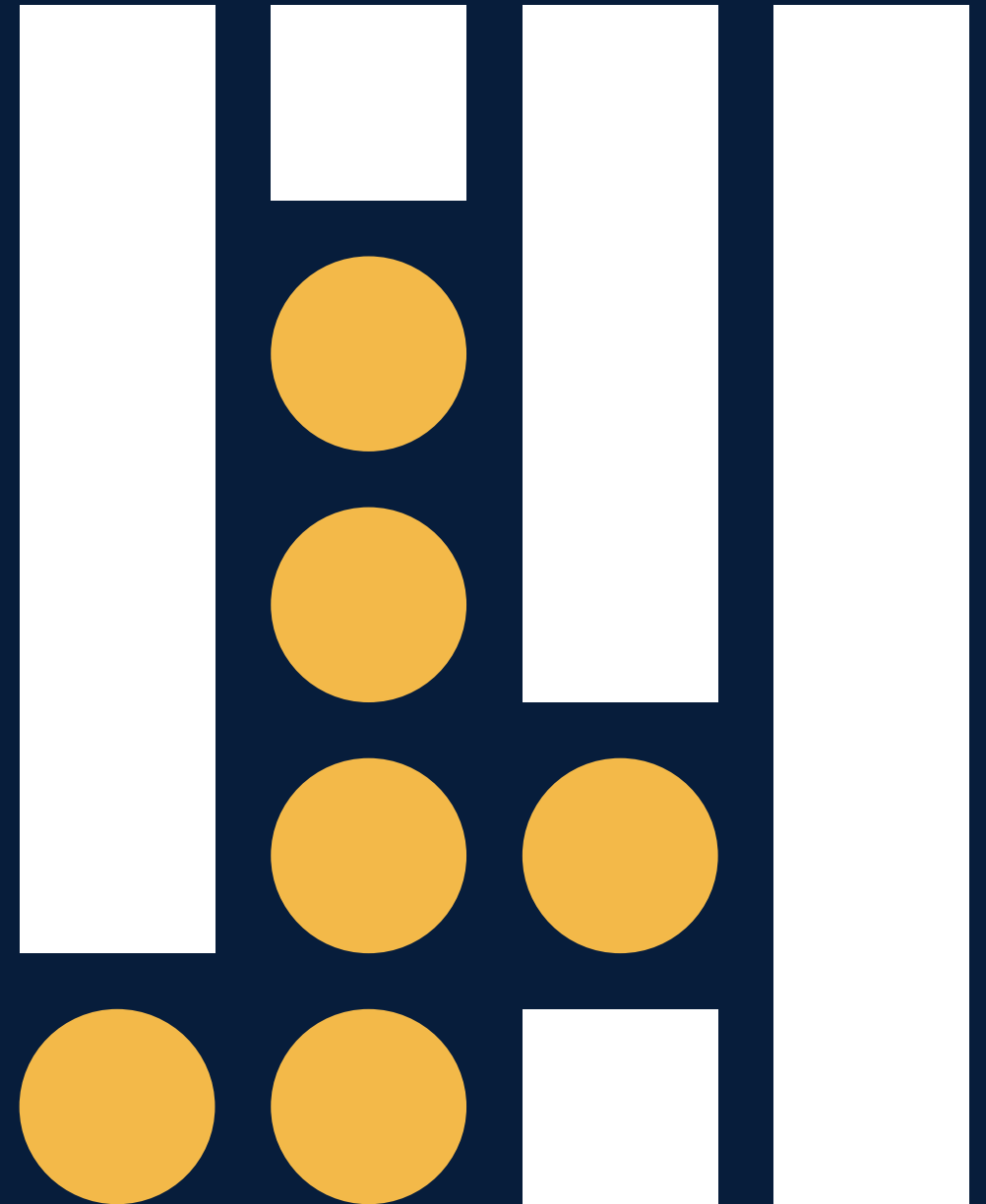


# Fintech, RegTech and the role of Machine-Readable Regulation

RegTech solutions for a Brave  
New World





**The FinTech Revolution**



**RegTech and SupTech**



**The role of Regulation**



**Machine-readable Regulation – Why?**



**Examples, benefits and use cases**



**Next steps – Machine-readable regulation by design**



# The FinTech Revolution



# 1. The FinTech Revolution



- Growing interest in technology-driven innovation in financial services.
- Despite a significant slowdown, investors remain bullish on **payments**, as well as **regtech**, **insurtech** and **AI** – particularly when they offer solutions to “streamline processes, mitigate risks and reduce costs.”

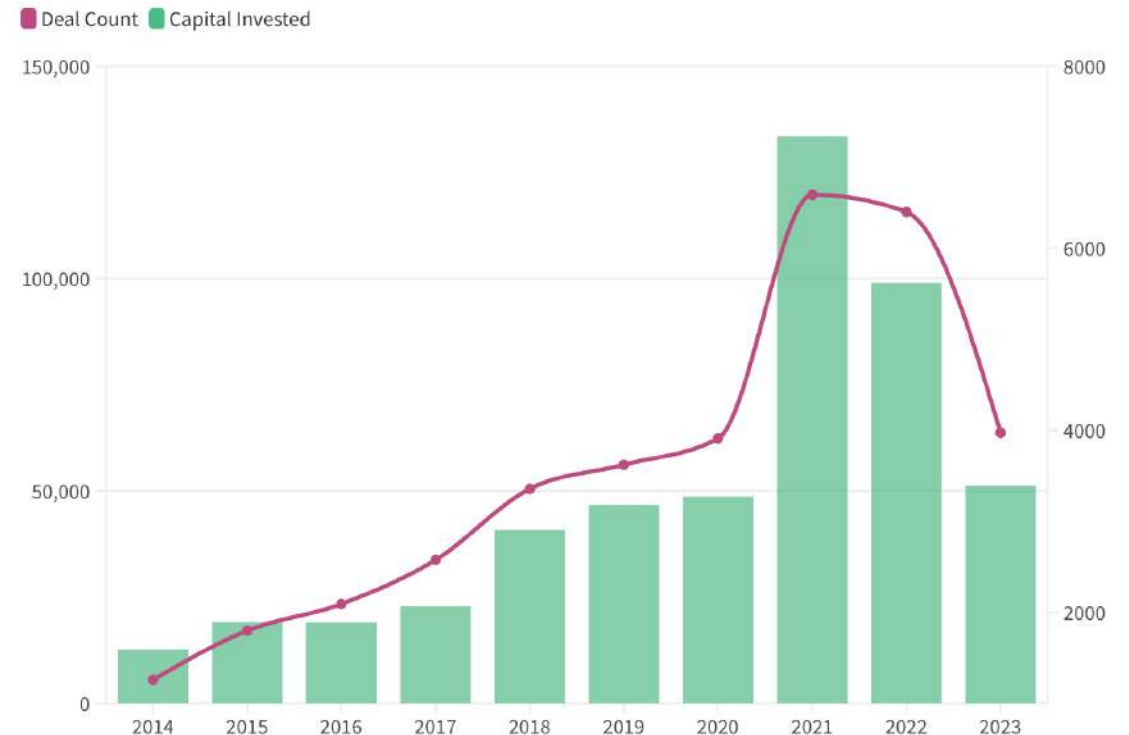
## Top 10 Global Markets



- United States: 1,530 deals, \$24.2 billion
- United Kingdom: 409 deals, \$5.1 billion
- India: 187 deals, \$2.5 billion
- Singapore: 176 deals, \$2.2 billion
- China: 76 deals, \$1.8 billion
- United Arab Emirates: 54 deals, \$1.3 billion
- France: 97 deals, \$1.2 billion
- Germany: 86 deals, \$1.1 billion
- Hong Kong: 41 deals, \$912 million
- Canada: 92 deals, \$884 million

## Global FinTech Investment

Capital invested and number of deals, 2012–2023



Source: Innovate Finance. Investment Landscape 2023



## Technologies used in FinTech

Artificial  
Intelligence

DLT

Machine  
Learning

APIs

Internet of  
Things

Big Data

Cryptography

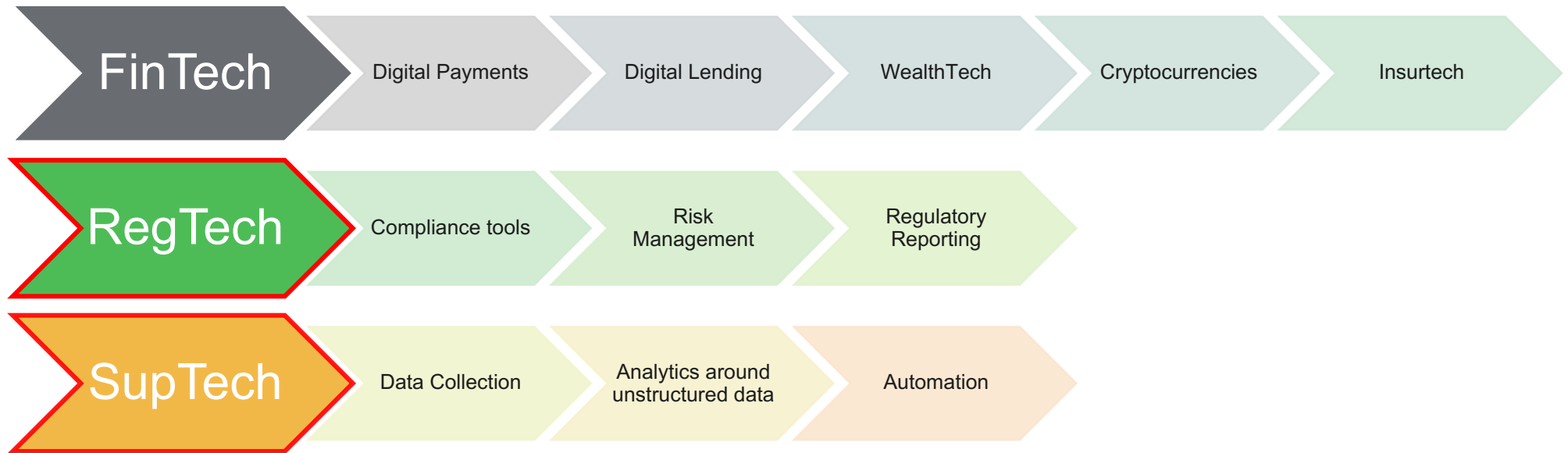
Smart  
Contracts

Cloud

# 1. The FinTech Revolution – Market segments

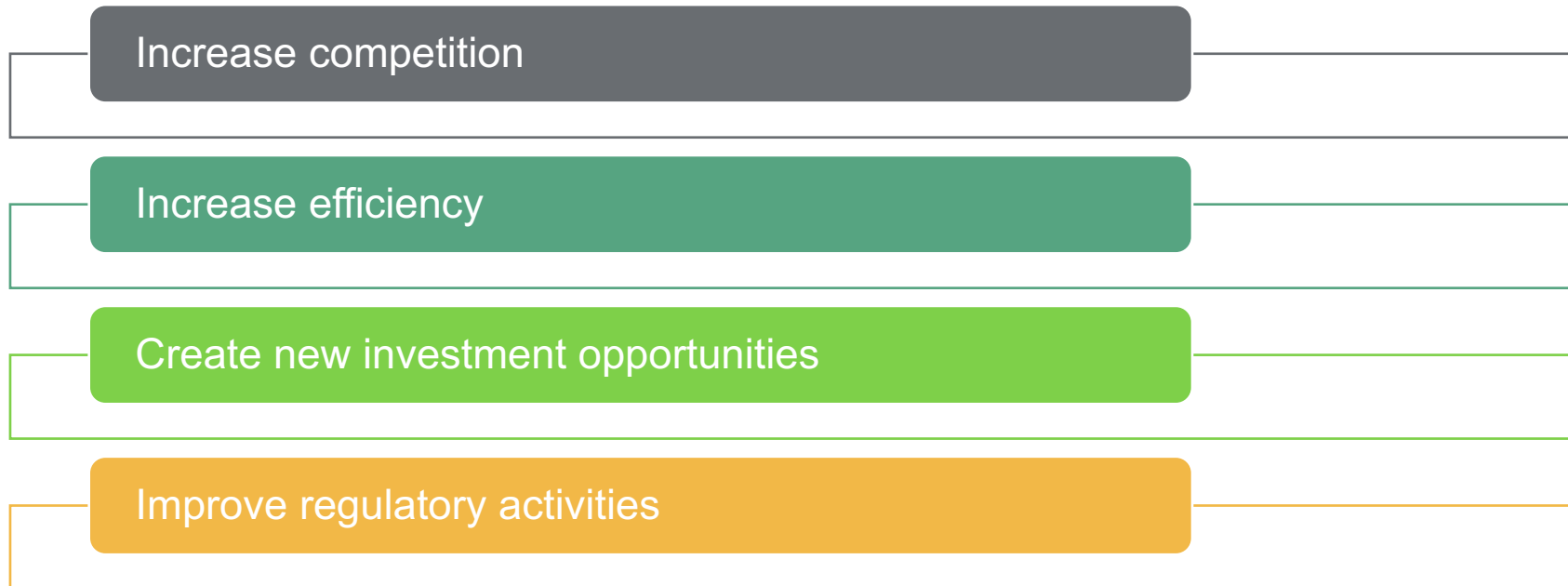


## Market segments





# Fintech impact in the financial sector





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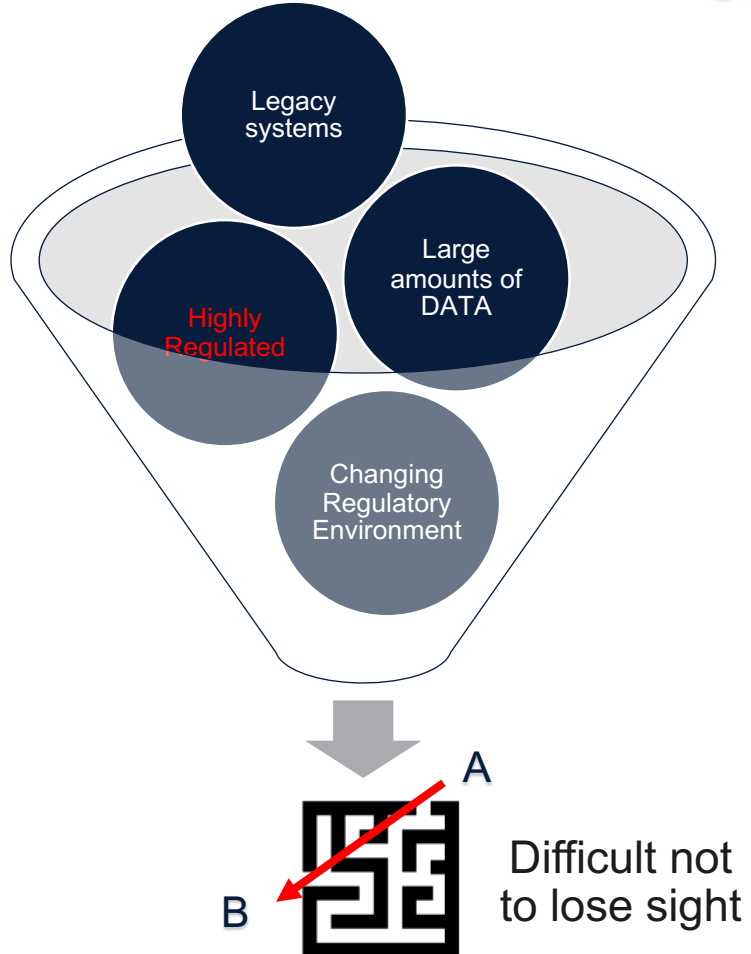
# RegTech and SupTech

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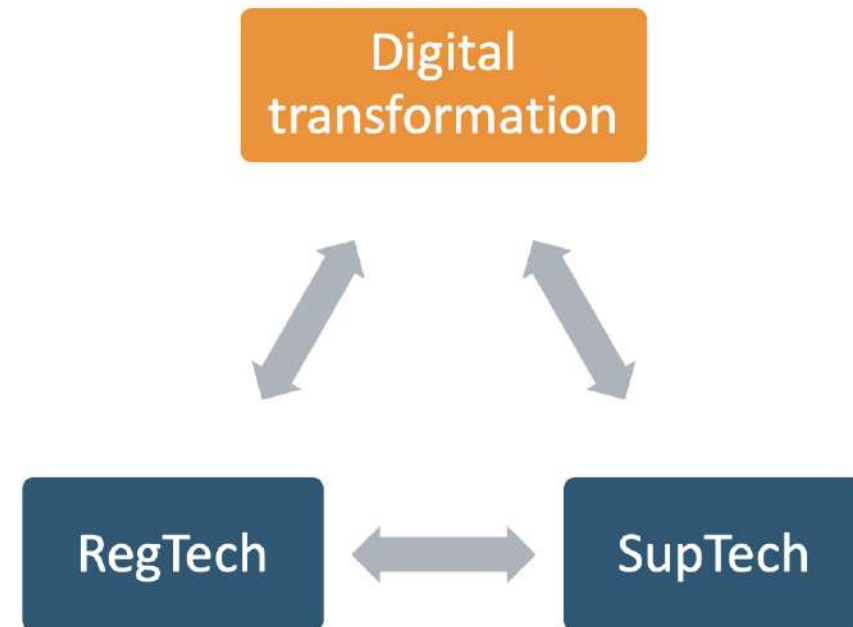




### Financial Sector Challenges



### How to address it?

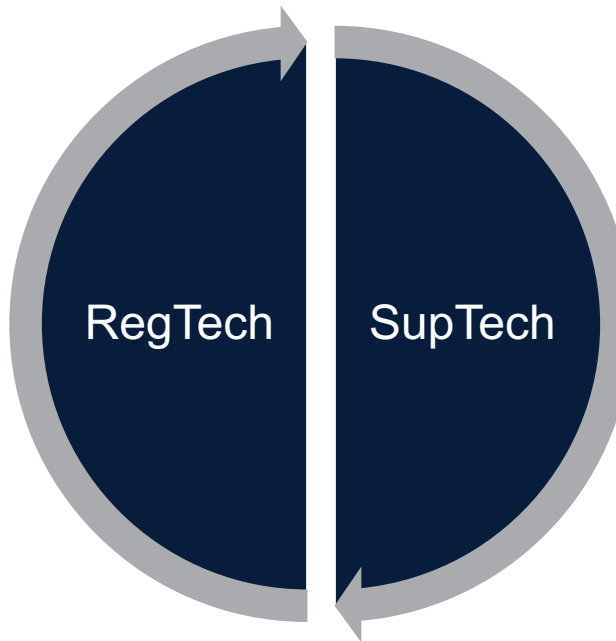


EBA:EBA analysis of RegTech in the EU financial sector

# Transformation of Regulatory Activities

## RegTech

Tools of technology-enabled innovation for regulatory, compliance and reporting implemented by a regulated institution that has the potential to make compliance more effective.



## SupTech

The use of technologies for supervisory and regulatory purposes by regulators and supervisory authorities.

Two sides of the same coin?



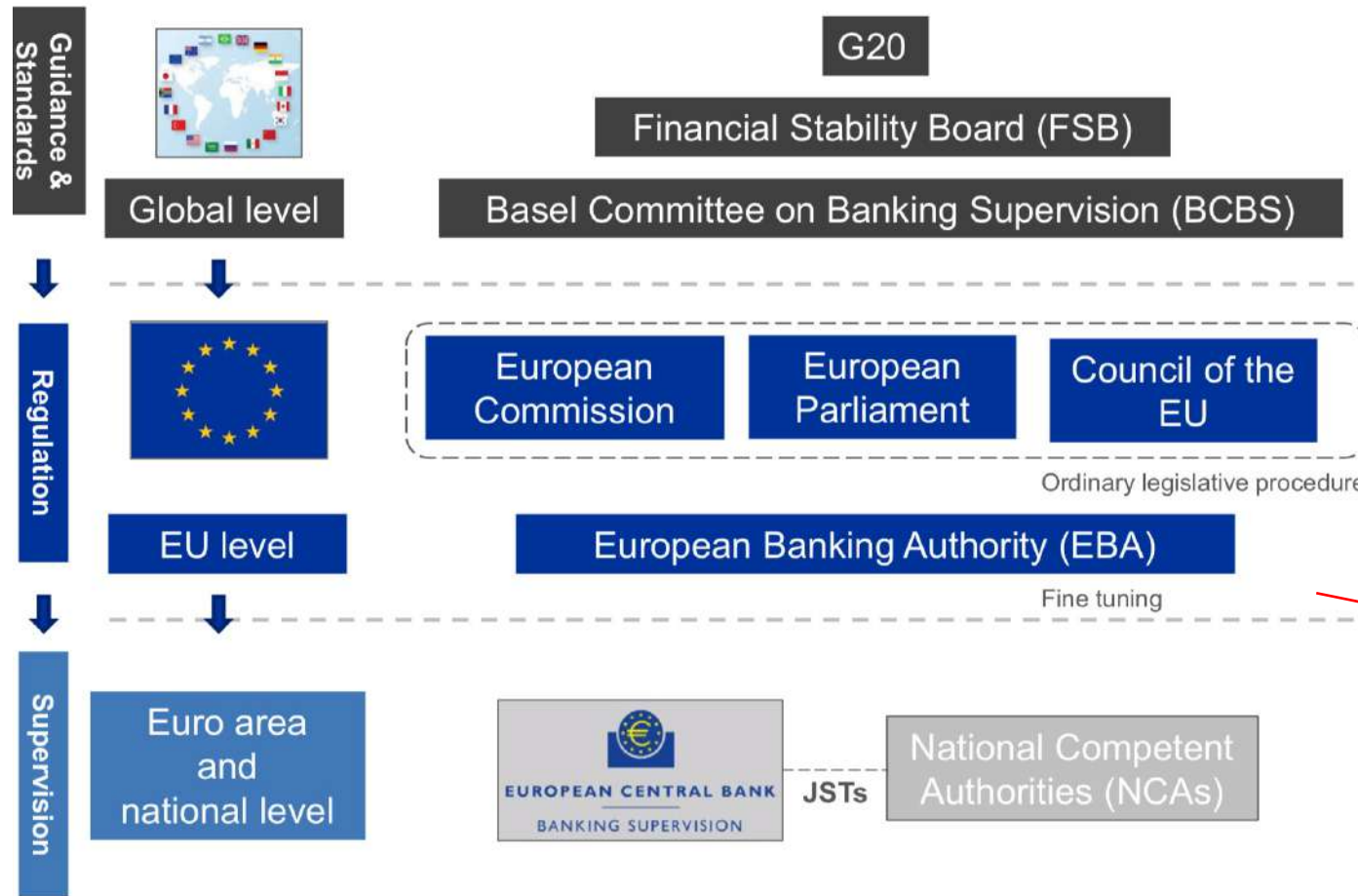
## The role of Regulation



# 3. The Role of Regulation



## The International dimension of financial regulation



**eba** European Banking Authority

Interactive Single Rulebook

The Interactive Single Rulebook (ISRB) is an on-line tool that provides a comprehensive compendium of the level 1 text listed below as well as their associated delegated and implementing acts, RTS, ITS, guidelines and recommendations, and related Q&As.

This Interactive Single Rulebook is meant purely as a documentation tool and has no legal effect. The EBA does not assume any liability for its contents. For the authentic version of EU legislation users should refer to the Official Journal of the European Union available through [EUR-Lex](#).

[Table of contents](#) [Search](#)

Legal act	Current ISRB version	Past ISRB version	EUR-lex current version
DIRECTIVE 2014/59/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL	Bank Recovery and Resolution Directive (BRRD)	Bank Recovery and Resolution Directive (BRRD)	BRRD <a href="#">C</a>
DIRECTIVE 2013/36/EU OF THE	Capital	Capital	

**eba** European Banking Authority

**Bank Recovery and Resolution Directive (BRRD)**

- Bank Recovery and Resolution Directive (BRRD): DIRECTIVE 2014/59/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL
- TITLE I: SCOPE, DEFINITIONS AND AUTHORITIES
  - Article 1: Subject matter and scope [C](#)
  - Article 2: Definitions [C](#)
  - Article 3: Designation of authorities responsible for resolution [C](#)
- TITLE II: PREPARATION
  - CHAPTER I: Recovery and resolution planning
    - Section 1: General provisions
      - Article 4: Simplified obligations for certain institutions [C](#)
    - Section 2: Recovery planning
      - Article 5: Recovery plans [C](#)
      - Article 6: Assessment of recovery plans [C](#)
      - Article 7: Group recovery plans [C](#)
      - Article 8: Assessment of group recovery plans [C](#)
      - Article 9: Recovery Plan Indicators [C](#)
    - Section 3: Resolution planning



### 3. The Role of Regulation



Rulemaking needs to adapt to the new digital economy and there are difficult trade-offs



Designing the right regulatory response takes time



On top of implementation regulators should ensure Compliance



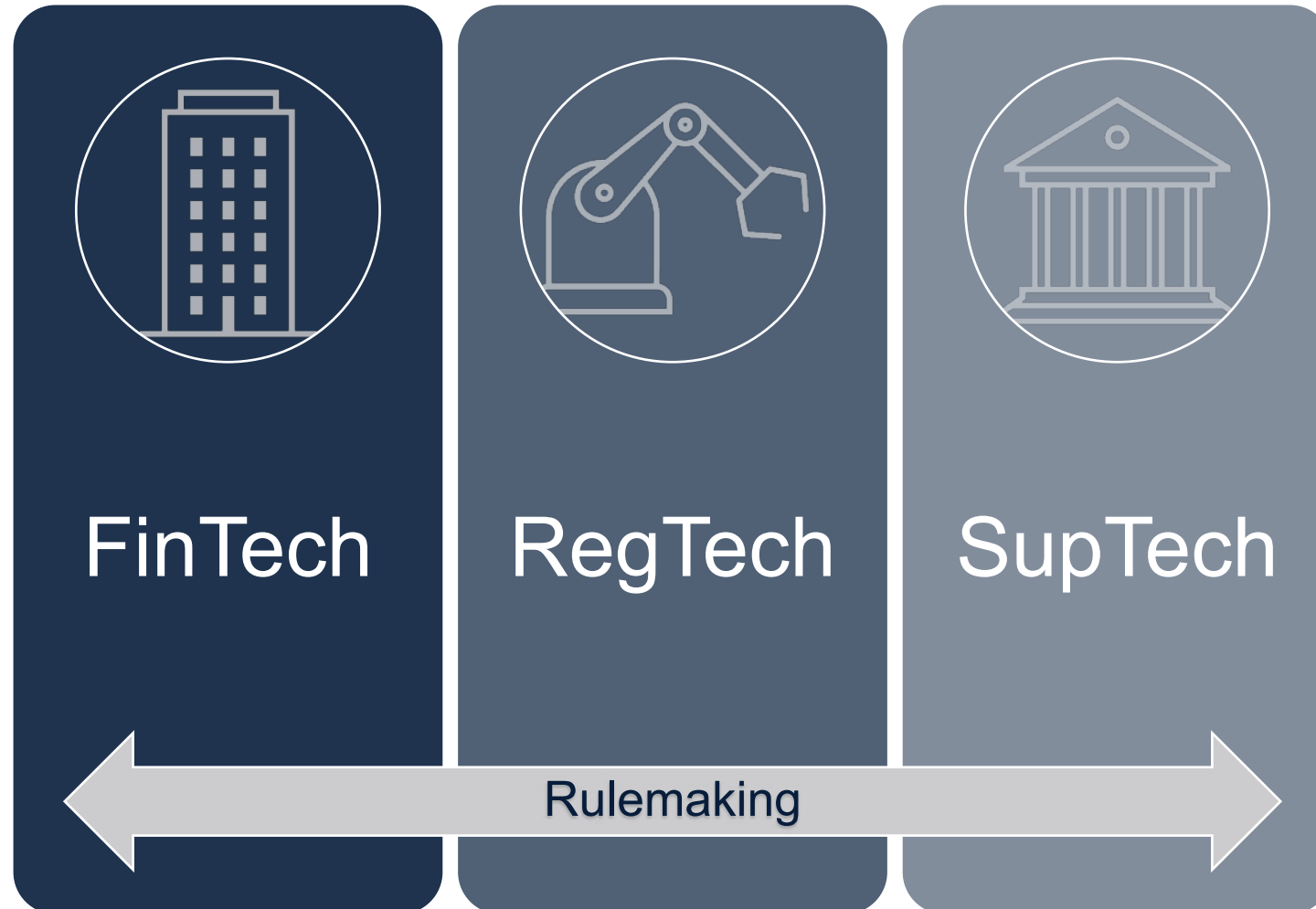
Rules need to be clearly communicated, open and accessible



Rules should be easily implemented and adaptable to change

...but most public attention is given to **substance** rather than to **form**, and the way rules are created, implemented and enforced has remained immune to transformation.

### 3. Regulation applies horizontally to all sectors and affect all domains of finance



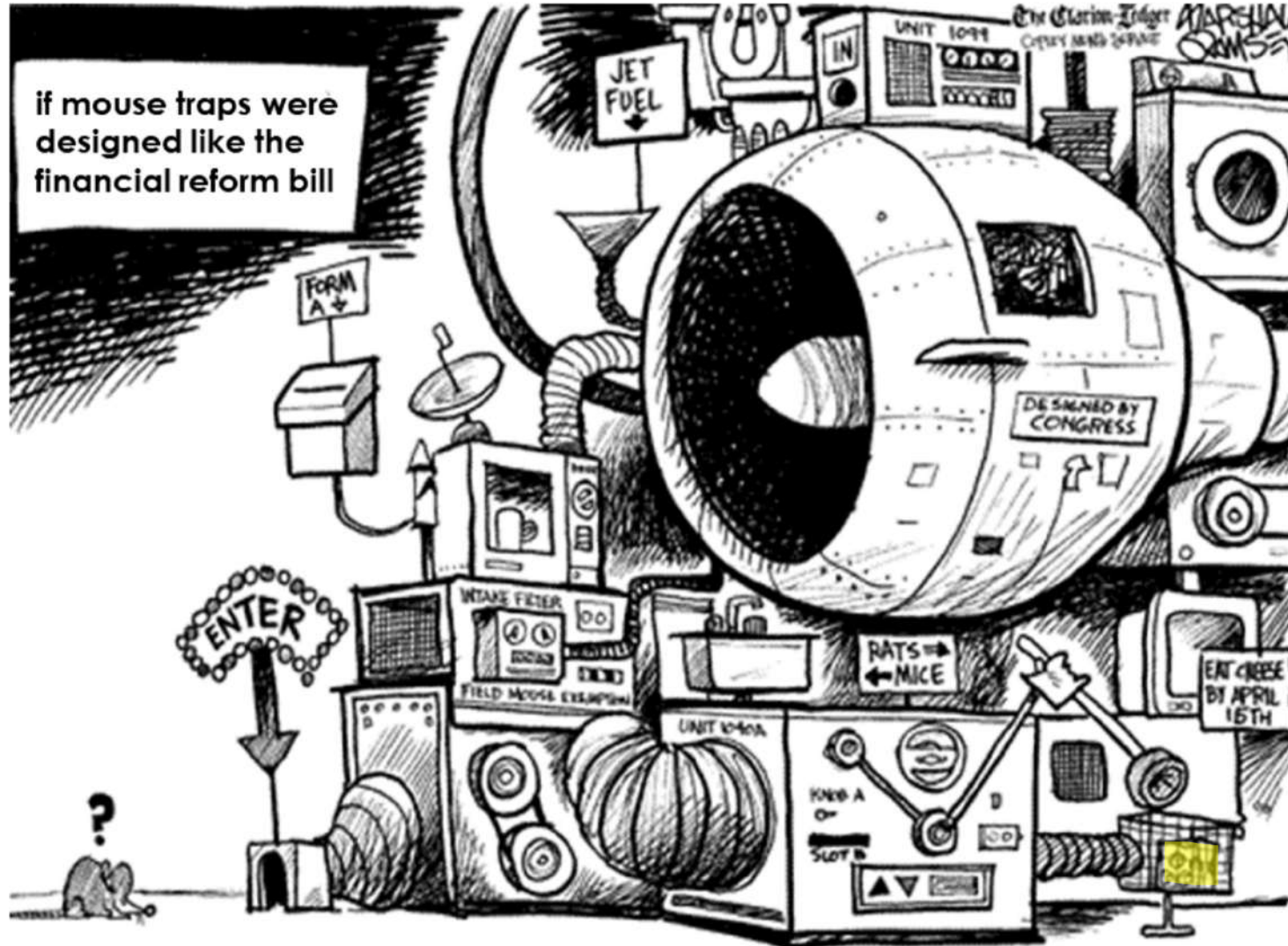




## Machine Readable Regulation – Why?



## 4. Machine-readable and consumable regulation – Why?



Cartoon by Marshal Ramsey

Regulation  
can be  
complex

## 4. The regulatory landscape is being disrupted by technological & socio-economic change

Turbulence of  
regulatory change



**89,000**

**regulatory changes**  
in 2022  
+8,000 since 2019

**VELOCITY**

Proliferating regulatory  
requirements



**250%**

**increase in number**  
of regulatory documents  
published since 2010

**VOLUME**

Expanding regulatory  
boundaries



**x10**

An investment manager  
can have **up to 10**  
**regulators** for ESG  
in the UK alone

**VARIETY**

Greater regulatory complexity is impacting all businesses – not just those operating in sectors historically considered as ‘regulated’

## 4. Within firms, human-intensive risk management processes are not sustainable

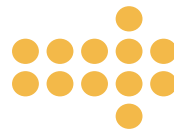


Compliance has reached an inflection point: **↑regulatory pressure + ↑competition + ↑costs<sup>5</sup>**

### Current state of compliance

Maintaining **regulatory inventory** requires “huge amount of time weeding out the noise”<sup>1</sup>

More than 50% of compliance staff handle administrative and repetitive tasks <sup>3</sup> – **staff retention is a growing problem<sup>8</sup>**



### Increasing operational risk

**60% increase in compliance costs** since 2008<sup>6</sup>

**58% of compliance spend is labour**, increasing 31% YoY<sup>9</sup>

**>\$400B in penalties** for bank non-compliance since 2009<sup>8</sup>

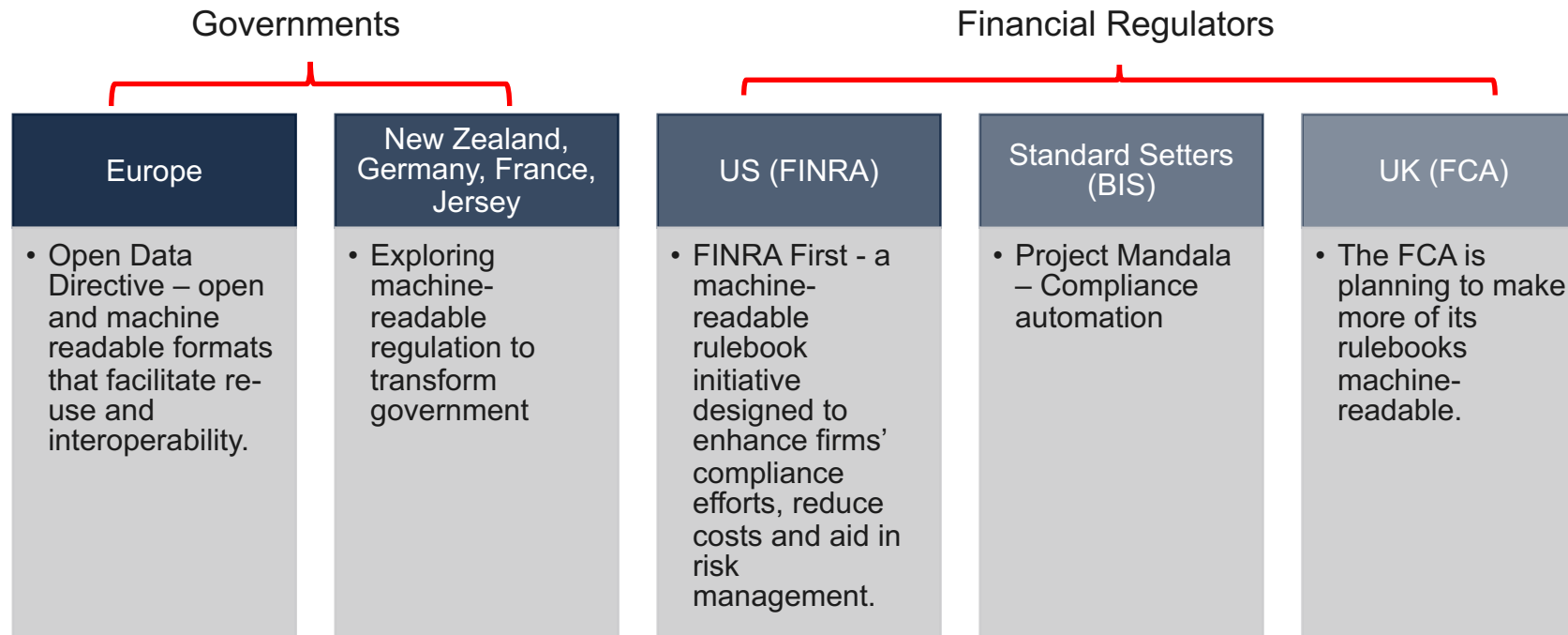
Firms need to adopt **machine-based processes** to effectively manage the impact of evolving regulation and regulatory risk.



## 4. Some countries are exploring the possibilities of machine-readable regulations



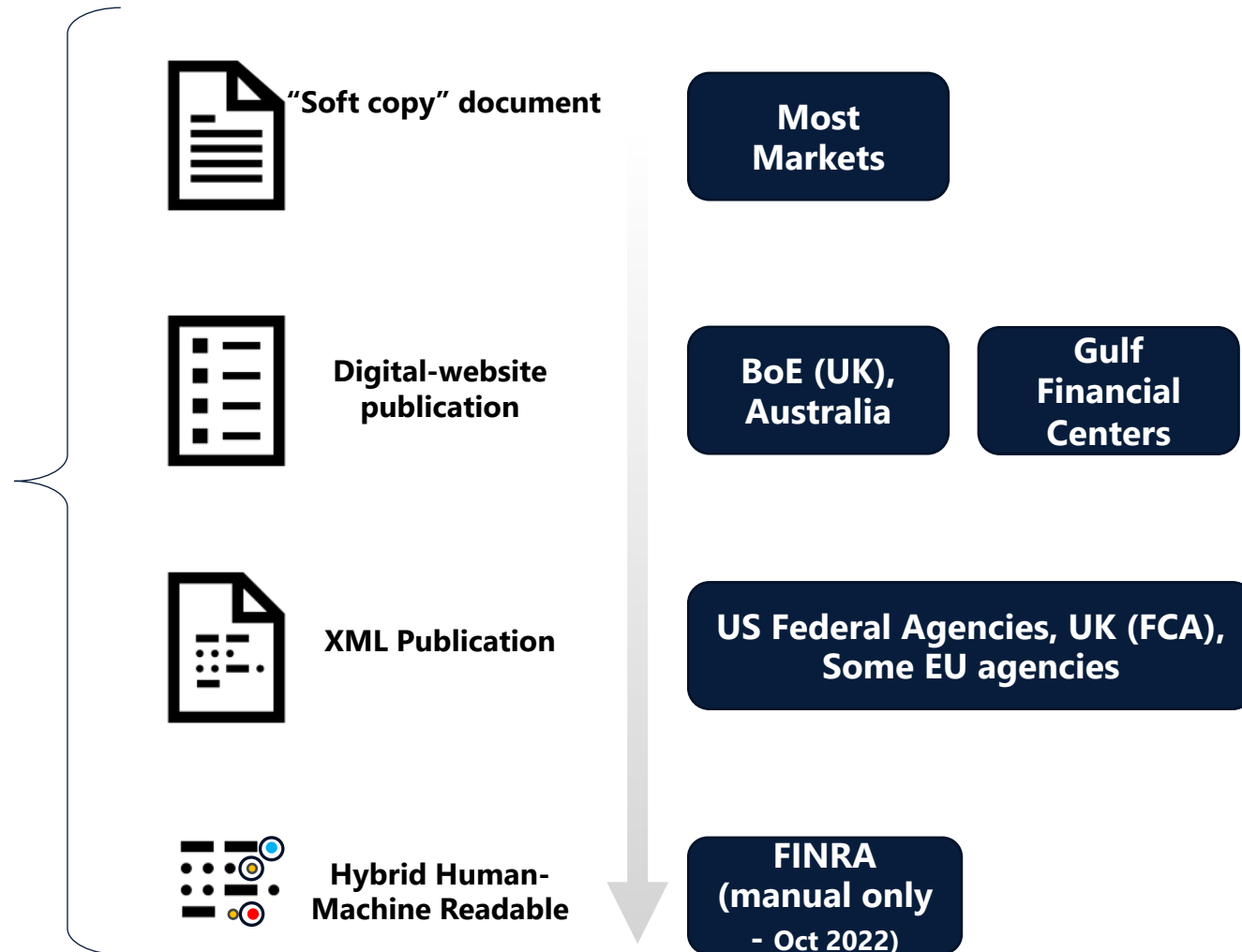
In Europe, public sector bodies should, **where possible and appropriate, make documents available**, including those published on websites, **through an open and machine-readable format and together with their metadata**, at the best level of precision and granularity, **in a format that ensures interoperability**. (Open Data Directive).



## 4. Regulation published as 'human-readable' is not suitable for the digital economy



### Evolution of Rulebooks



### Why a Machine-Readable Rulebook?

#### INDUSTRY

- For RegTech and regulated firms, the ability to use a machine-readable rulebook enables compliance solutions automation and reduce compliance costs

#### REGULATORS

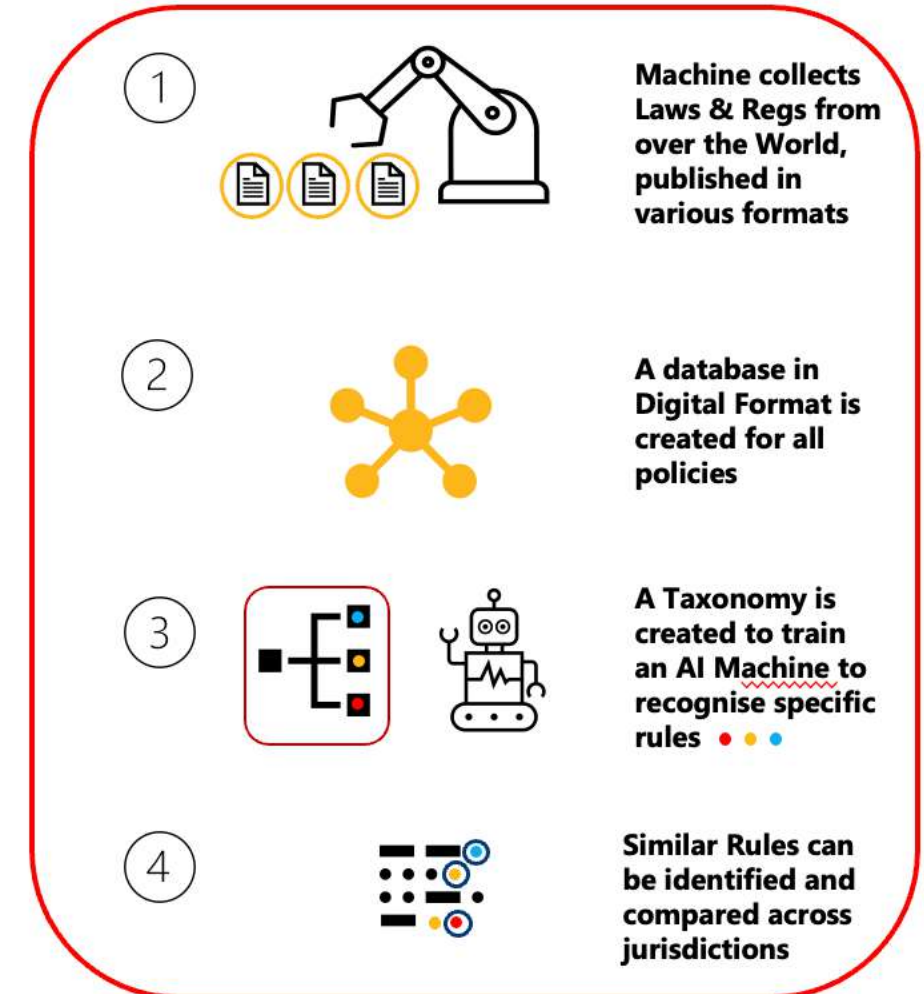
- Externally: providing a service to the industry to develop efficiently and interoperable financial services markets
- Internally: enhanced processes for both Supervision/Enforcement and Policy-making activities



## 4. The Regulatory Genome Project in Cambridge



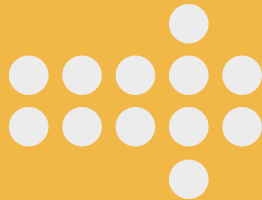
A transformational Public-Private project building an open regulatory information structure and a repository of aggregated and structured regulatory content.





## The Source:

Financial services relevant  
unstructured regulation from  
the world's publishers



Taxonomy  
Development

Content  
Rights

Pipeline

Product

## The Solution:

RegGenome provides regulatory data as a service. Our data is processed according to information structures (Cambridge Regulatory Genome taxonomies), developed and reviewed with regulatory experts and anchored to regulatory standards in conjunction with the University of Cambridge

# Benefits, challenges and use cases



## 5. The near-term value of regulation as code



Digital publishing,  
retrieval and  
accessibility

**Metadata** enhances search and filtering for relevant documents or regulatory obligations.

Visualisation

Regulation can be presented in a visually appealing manner to attract the interest of, citizens, stakeholders, the press, and businesses.

Extracting, Sharing  
and Licensing  
content via APIs

Structured regulatory content can be extracted, shared and licensed via an API (rather than through a PDF)

Integration

Provides the ability to integrate regulatory content into internal systems (i.e., compliance policies and procedures), enabling automation.

Data Analytics and  
Benchmarking

Machine readable regulation could progressively enable policy makers to identify the gaps, duplication of rules or conflicts between them.

Interoperability and  
efficiency

Machine readable regulation could enable individuals and businesses to re-use and innovate using public infrastructure. Links with the “open data” movement.



### Reverse Engineering

It is difficult to produce machine consumable rules if the policy and legislation has not been developed with this output in mind (legacy problem).

#### Implementation

Infrastructure needed and not suitable for all legislation

#### Accountability

With increased automation it might be difficult to identify the entity or person responsible for mistakes

#### Flexibility

When legislation is embeded in a large codebase it might be difficult to change


#### Unrealistic expectations


Early stage and it will take time – risk of becomig overhyped







# Searching and Filtering Tool - Documents


  
Library


  
Tasks


  
My account

  
Notifications

the expertise by Mr Herbert Zammit LaFerla  
Council of the European Union  
European Union - 11 October 2013 - Policy Documents

☐  COMMISSION STAFF WORKING DOCUMENT IMPACT ASSESSMENT  
Accompanying The Document Proposal For A Directive Of The  
European Parliament And Of The Council On The Prevention Of The  
Use Of The Financial System For The Purpose Of Money Laundering,  
Including Terrorist Financing And Proposal For A Regulation Of The  
European Parliament And Of The Council On Information  
Accompanying Transfers Of Funds  
European Parliament  
European Union - 02 May 2013 - Policy Documents

☐  EBA/GL/2022/03: Final Report: Guidelines on common procedures and  
methodologies for the supervisory review and evaluation process  
(SREP) and supervisory stress testing under Directive 2013/36/EU  
European Banking Authority  
European Union - 18 March 2022 - Rules and Regulations

☐  EBA/GL/2022/09 ESMA35-36-2621: Final Report Joint EBA and ESMA

+ ☐ Activity Based Financial Prohibitions

+ ☐ Asset Freezing and Forfeiture

- ☐ Customer Due Diligence

- ☐ Additional CDD (transaction-specific)
- ☐ CDD exemption
- ☐ CDD measures
- ☐ CDD triggers
- ☐ Correspondent Bank CDD

☒ Enhanced CDD

☐ Enhanced CDD (specific to counterparties)

☐ Prohibitions for high risk counterparties





☐ Risk based CDD

☐ Simplified CDD






# Searching and Filtering Tool – Within Documents


  
Library
   
  
  
Tasks
   
  
  
My account
   
  
  
Notifications

Risk management and financial access			
		right of non-discriminatory access to a basic payment account under Article 15 of Directive 2014/92/EU.	
Level of monitoring			
	Summary of responses received	EBA analysis	Amendment
	<p>Several respondents commented that this paragraph would benefit from conveying more clearly that there is an expectation of lower monitoring in low-risk cases.</p> <p>A suggestion was to add, at the end of paragraph 18, the following sentence: <i>'The measures referred to in points a) to c) should be used in a way and with a frequency that is proportionate so as not to constitute an unduly onerous obligation on customers constituting a low risk. Credit and financial institutions should ensure that ongoing monitoring is less intensive for customers identified as lower risk where they continue to carry out their activities within the profile established under point a).'</i></p>	<p>The paragraph starts by reminding credit and financial institutions that they should set out in their policies and procedures how to adjust the level and intensity of monitoring in a way that is commensurate with the ML/TF risk associated with the customer, as set out in the EBA's Guidelines on risk factors. To ensure further clarity, the paragraph is amended as follows:</p> <p>18. Credit and financial institutions should set out in their policies and procedures how they adjust the level and intensity of monitoring in a way that is commensurate with the ML/TF risk associated with the customer <i>and in line with the customer's risk profile, as set out in the EBA's Guidelines on risk factors and in particular guidelines 4.69 to 4.75</i></p>	Amendment
	Another respondent commented that the term 'destination of transactions' was unclear as this could be interpreted as the purpose of the rela-	The term refers to enhanced due diligence (EDD) measures set out in Article 18(1), which requires credit and financial institutions to apply EDD measures in cases of links with	None

Page 18

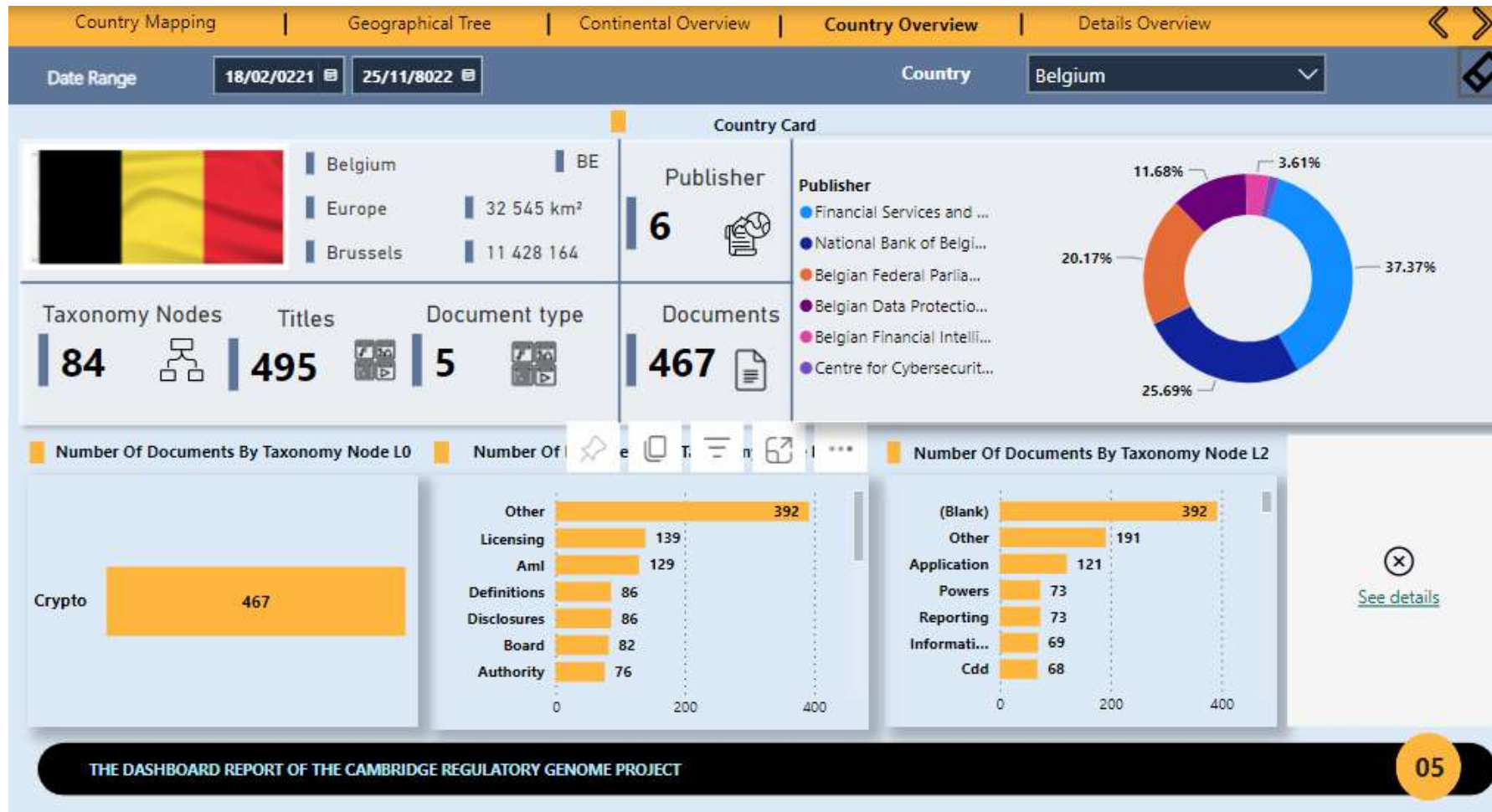
 Anti-money Laundering - Customer Due Diligence - Enhanced CDD

Page 28

 Anti-money Laundering - Customer Due Diligence - Enhanced CDD



### Dashboard – Analytics (Regulatory Content)



01



## Next steps – Machine-readable Regulation by design

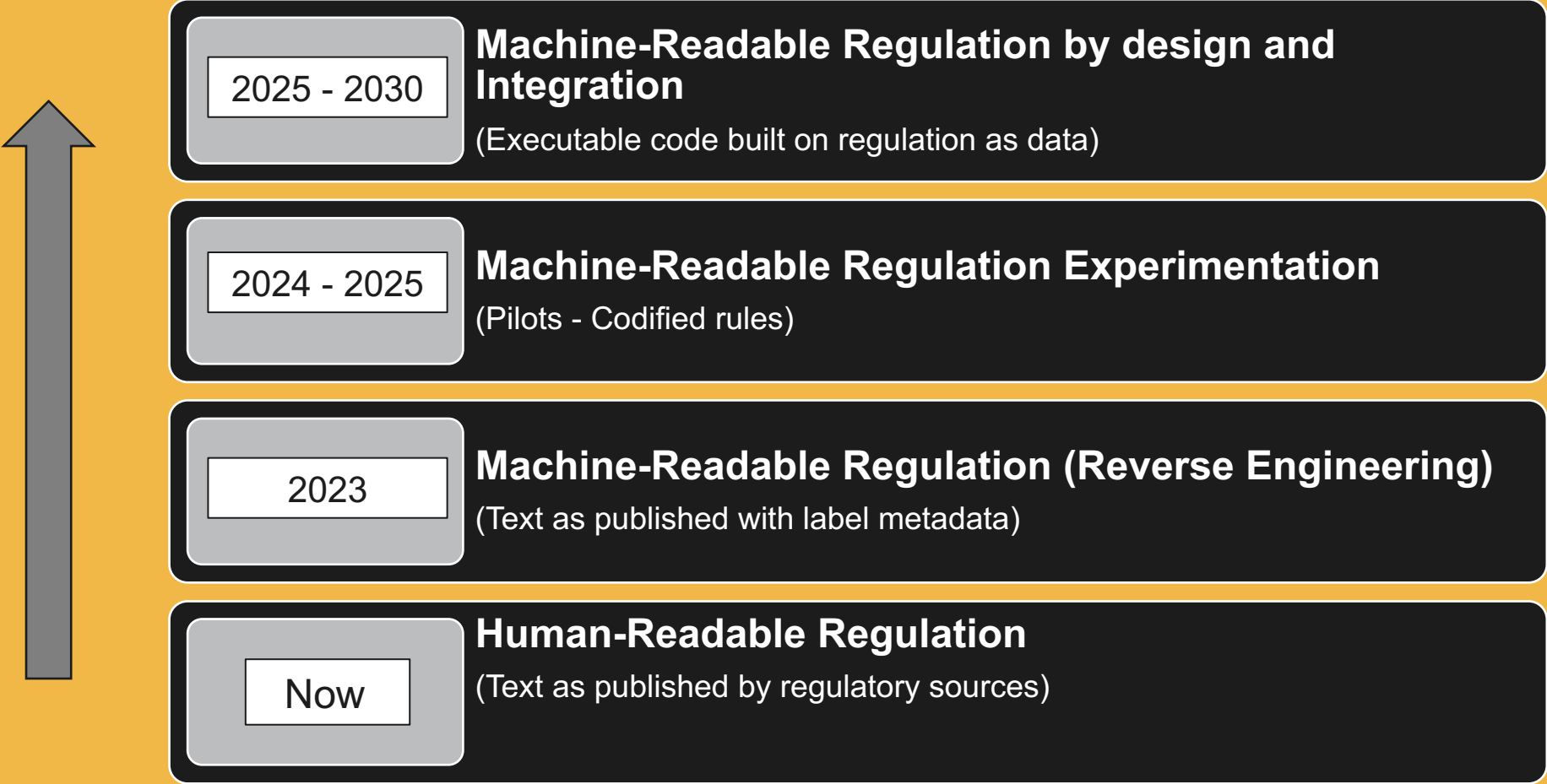




# 6. Potential timeline for Machine readable regulation by design



Providing regulatory information as fit-for-purpose data



## 6. A new format is needed – Machine readable regulation by design



4/65 - EN - mifid ii - EUR-Lex

Document 32014L0065 ? Share

**Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014 on markets in financial instruments and amending Directive 2002/92/EC and Directive 2011/61/EU (recast) Text with EEA relevance**

*OJ L 173, 12.6.2014, p. 349–496 (BG, ES, CS, DA, DE, ET, EL, EN, FR, HR, IT, LV, LT, HU, MT, NL, PL, PT, RO, SK, SL, FI, SV)*

In force: This act has been changed. Current consolidated version: [23/03/2023](#)

ELI: <http://data.europa.eu/eli/dir/2014/65/oj>

Expand all Collapse all

▼ Languages, formats and link to OJ

	<b>NEW!</b>	BG	ES	CS	DA	DE	ET	EL	EN	FR	GA	HR	IT	LV	LT	HU	MT	NL	PL	PT	RO	SK	SL	FI	SV
HTML																									
PDF																									
Official Journal																									

▼ Multilingual display

English (en) Please choose Please choose **Display**

Machine-readable  
format?

Human-readable  
format?

# Thank You



A stylized logo on the left side of the image. It features four vertical white bars of varying heights. Between the second and third bars, there is a vertical column of five yellow dots. The top of the second bar has a small white square, and the bottom of the third bar has a small white square.

REG.  
GENOME