

WEBINAR

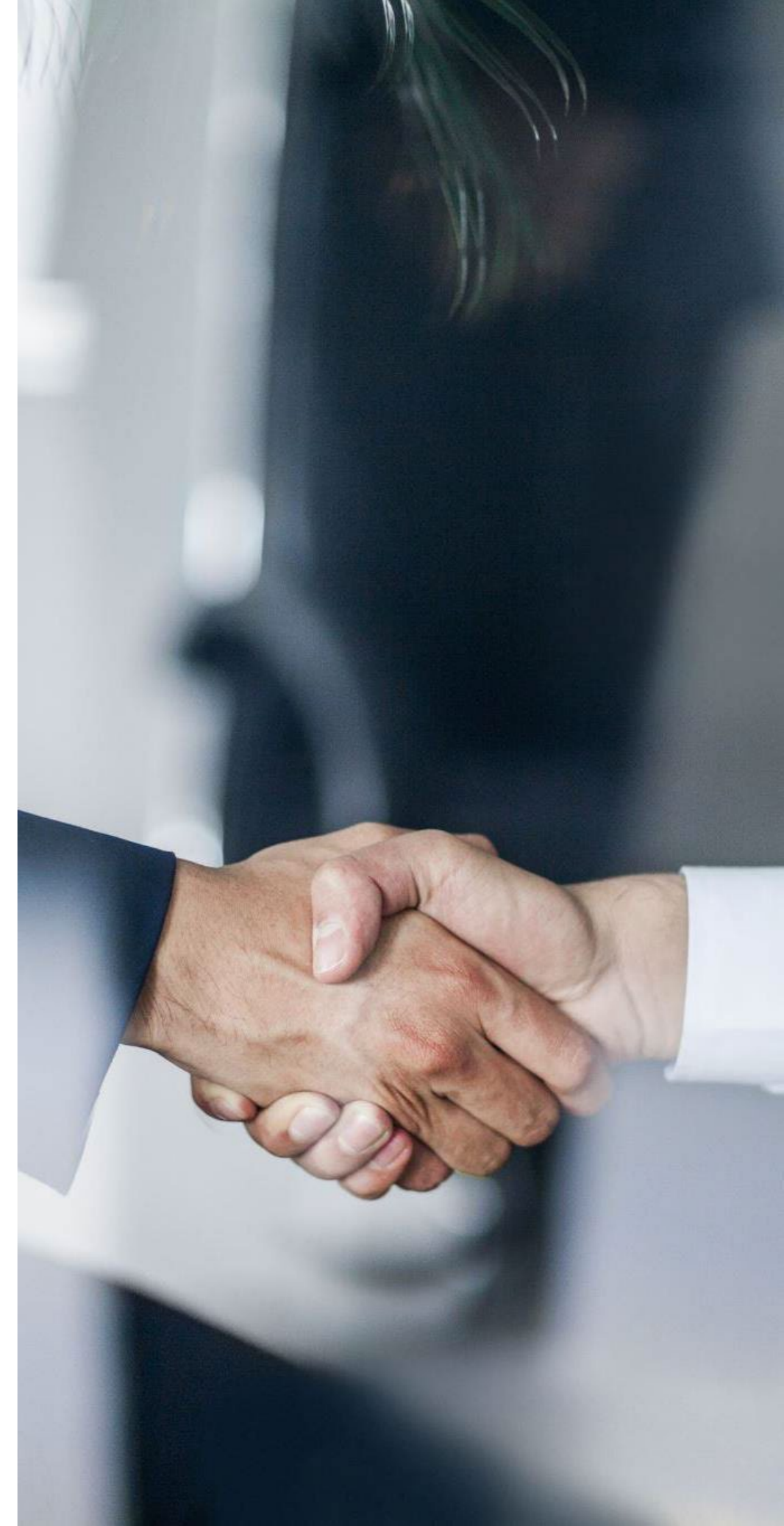
# Stress testing the infrastructure's capacity

CVM Resolution 35/2021



# Agenda

- 1. Rules and Communications**
- 2. Current Scenario**
- 3. Scope**
- 4. Capacity Management - B3**

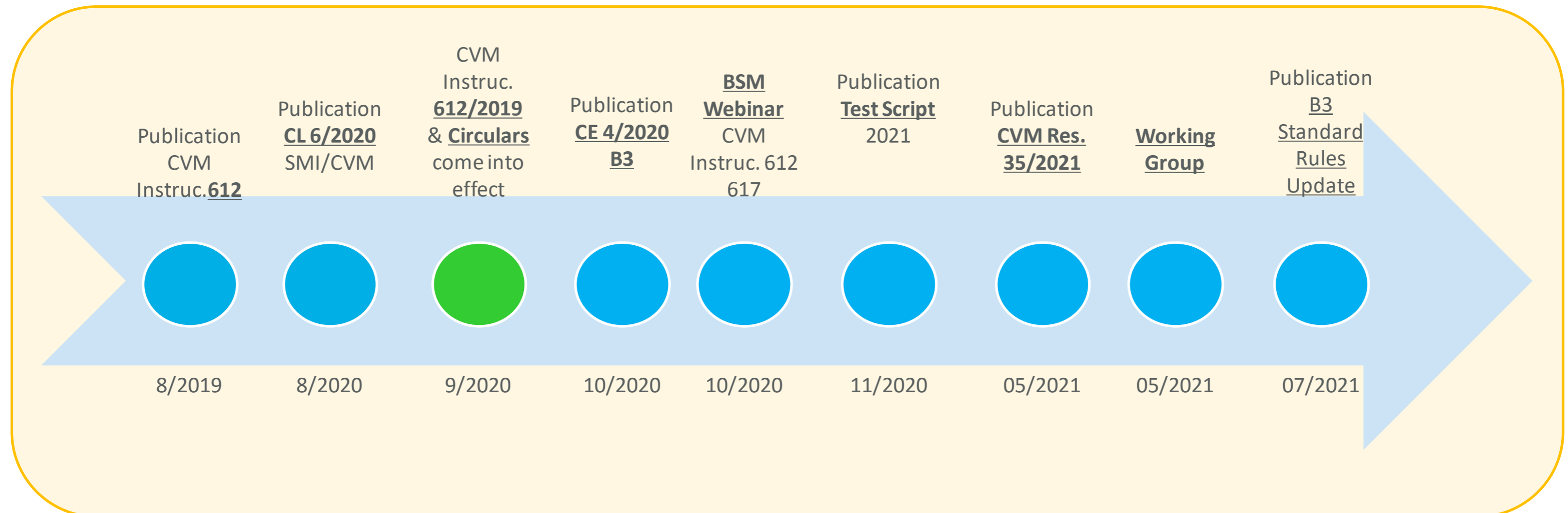


# 1. Rules and Communications

# Stress testing the infrastructure's capacity

## Rules and Communications

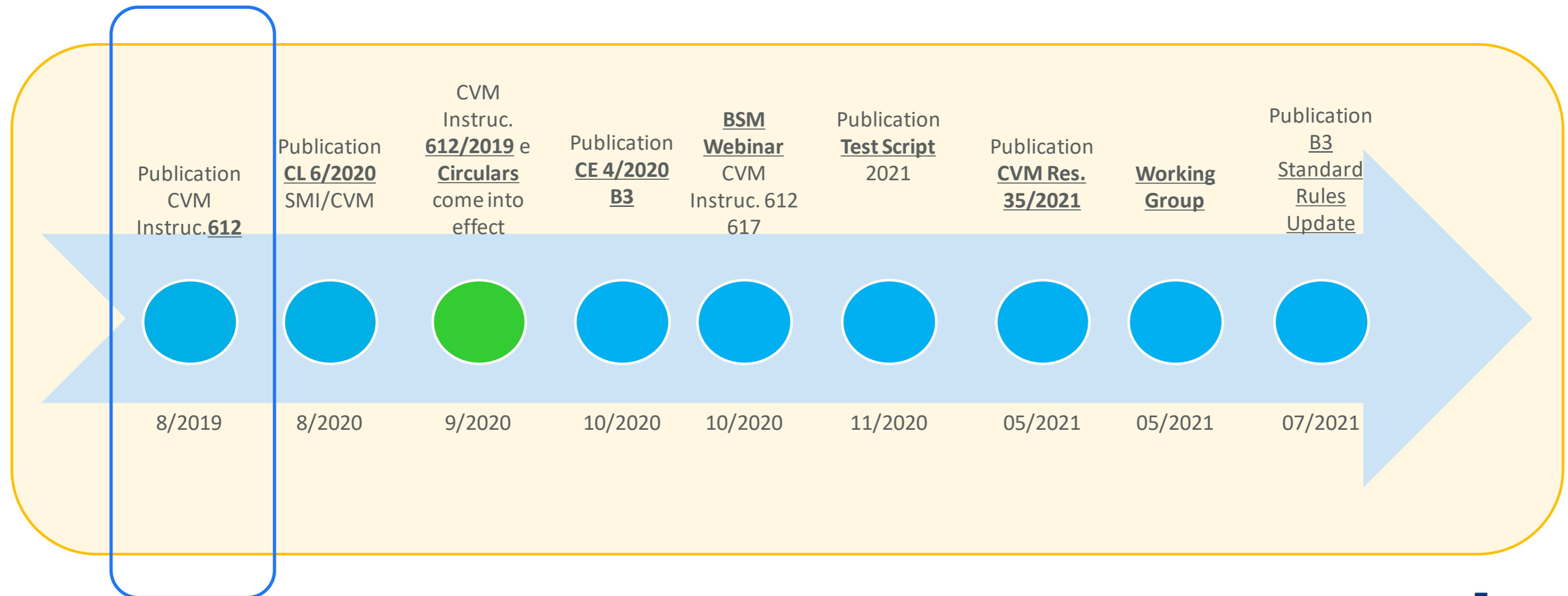
### TIMETABLE



# Stress testing the infrastructure's capacity

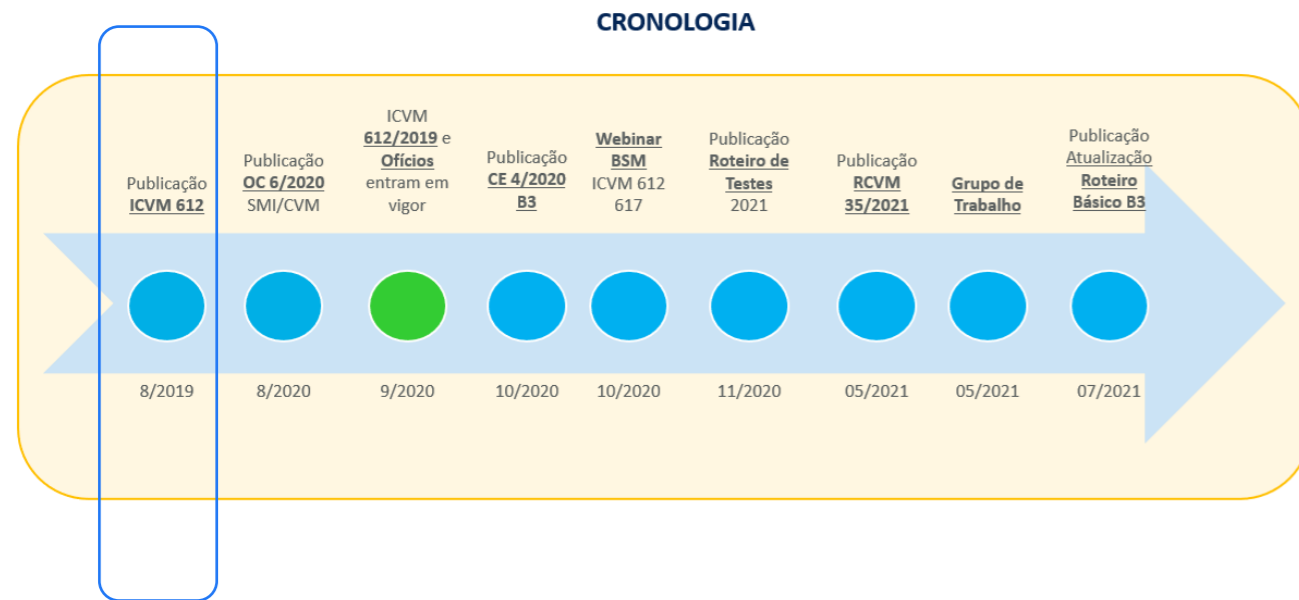
## Rules and Communications

### TIMELINE



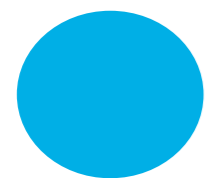
# Stress testing the infrastructure's capacity

## Rules and Communications



**CVM**

**Instruction 612**



08/2019



### Paragraph 1 and subparagraph II, Paragraph 3 of Art. 32

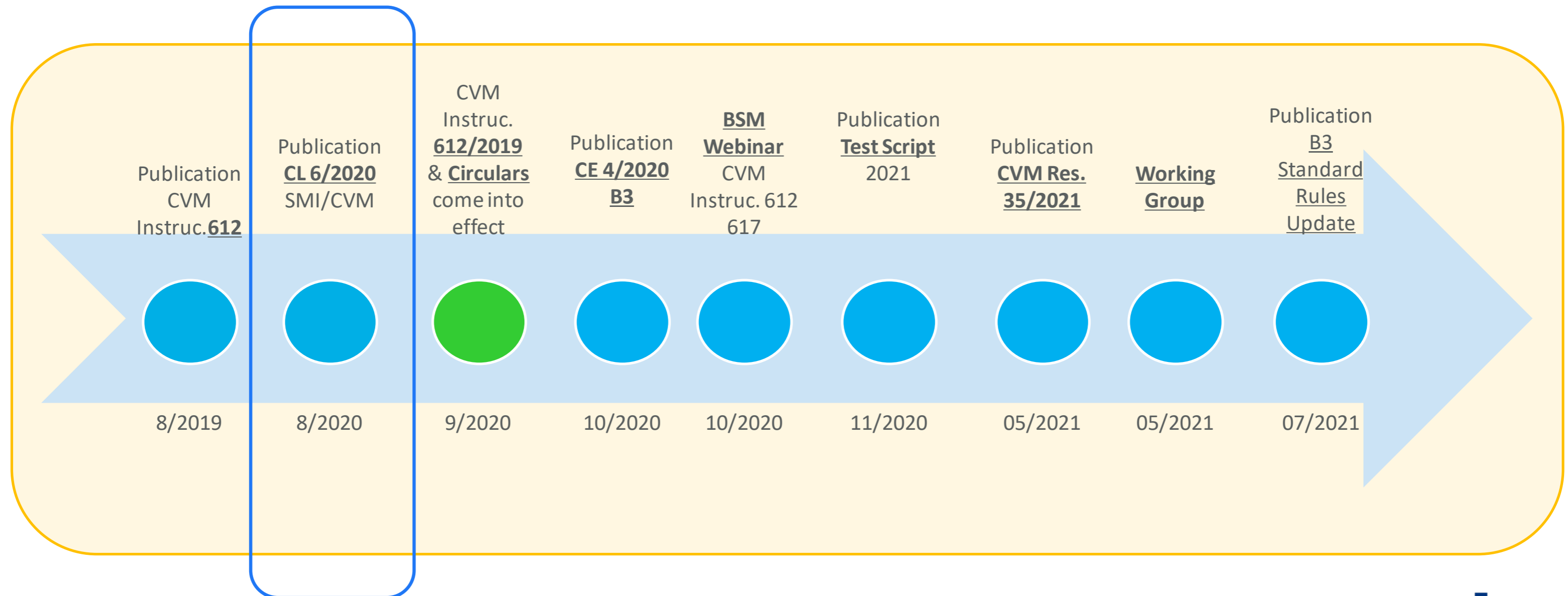
The information technology infrastructure must be compatible with the volume, nature and complexity of operations in order to maintain client service, including during peak demand.

The technology systems that the intermediary uses must be submitted for tests at appropriate intervals, as set out in policy, to check how they work in stress scenarios.

# Stress testing the infrastructure's capacity

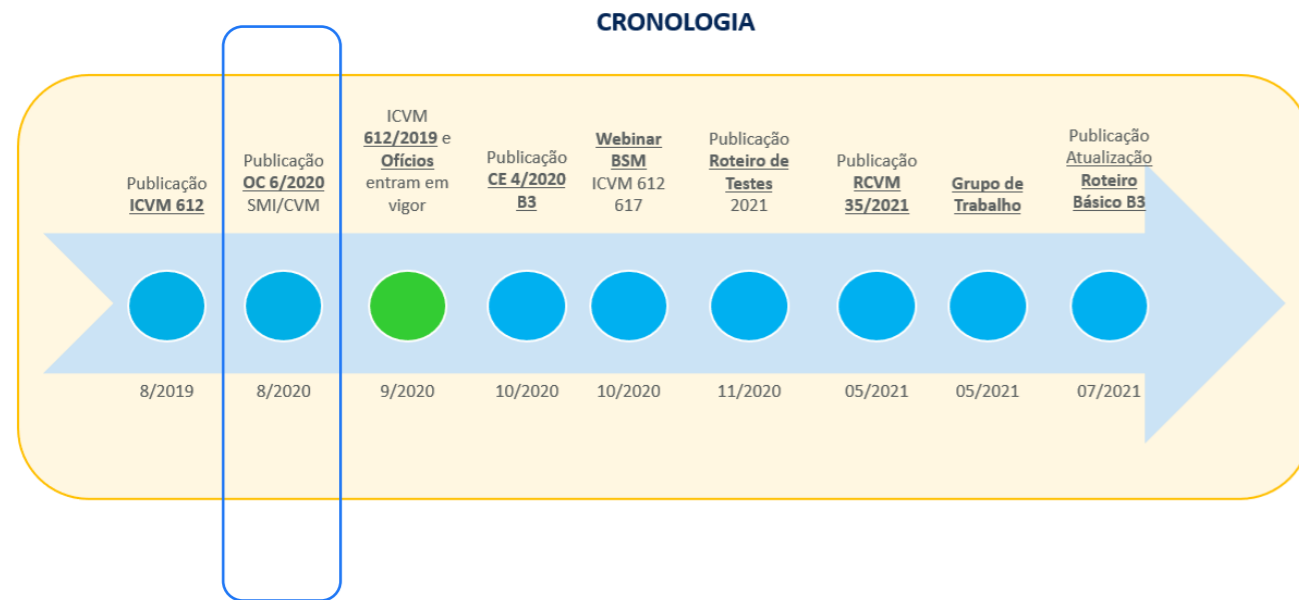
## Rules and Communications

### TIMELINE

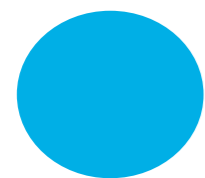


# Stress testing the infrastructure's capacity

## Rules and Communications



## Circular Letter 6/2020 SMI/CVM



08/2020



### Items 5, 6 and 22 of Circular Letter 6/2020-SMI/CVM

stipulate that information technology infrastructure must be compatible with the volume, nature and complexity of operations in order to maintain client service, including during peak demand.

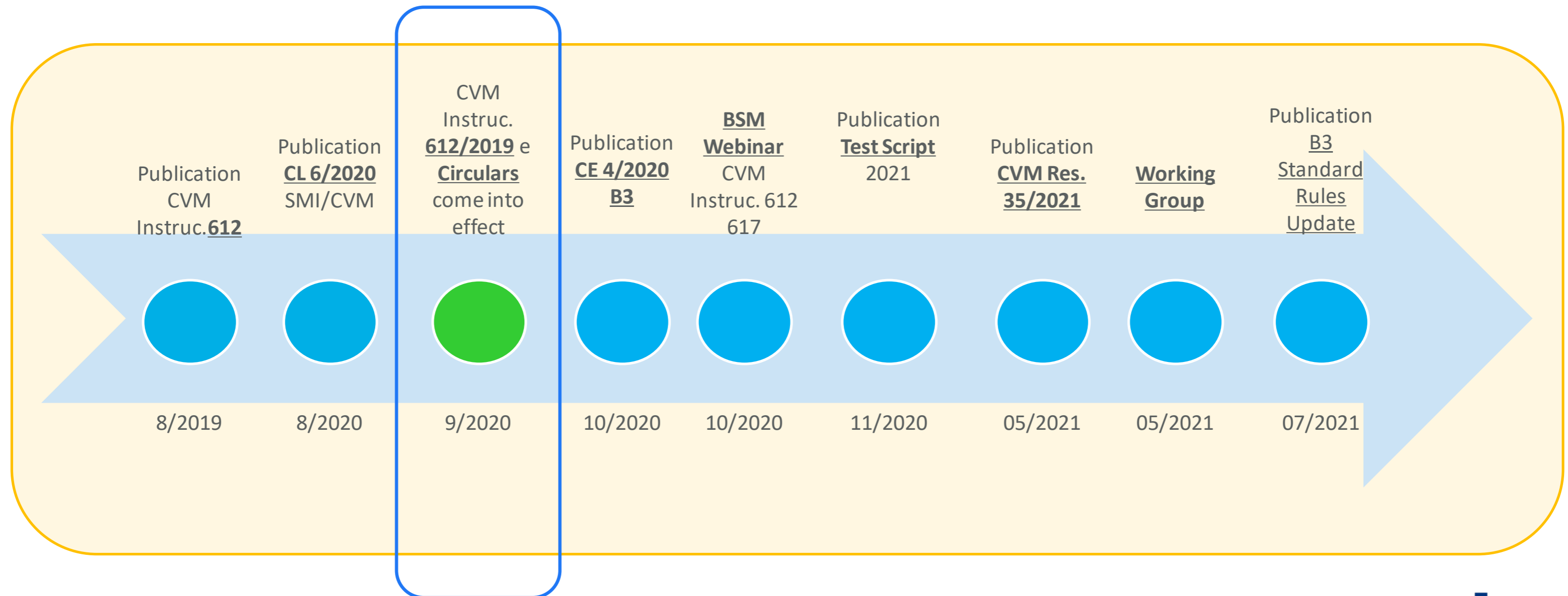
The Technical Area understands that, just as it does in relation to its own systems, it must also submit third parties' trading platforms to check how they operate in stress scenarios, for testing at appropriate intervals, as set out in policy.



# Stress testing the infrastructure's capacity

## Rules and Communications

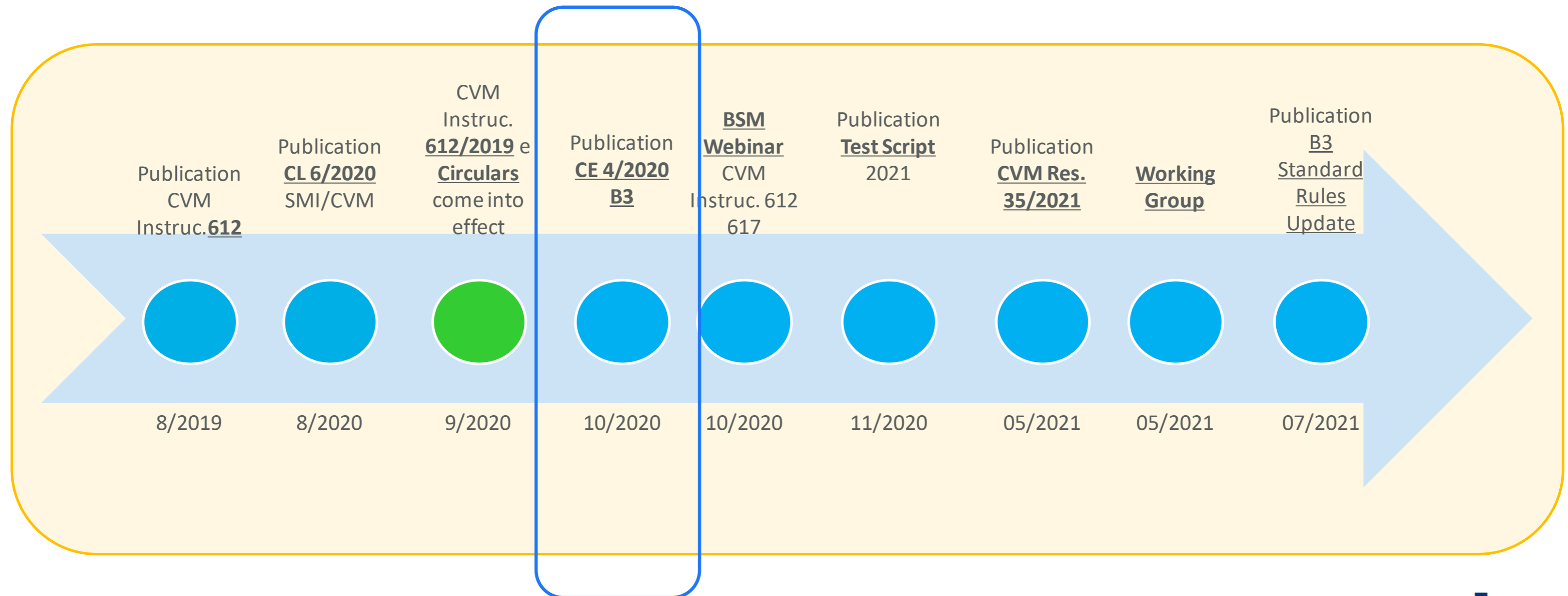
### TIMELINE



# Stress testing the infrastructure's capacity

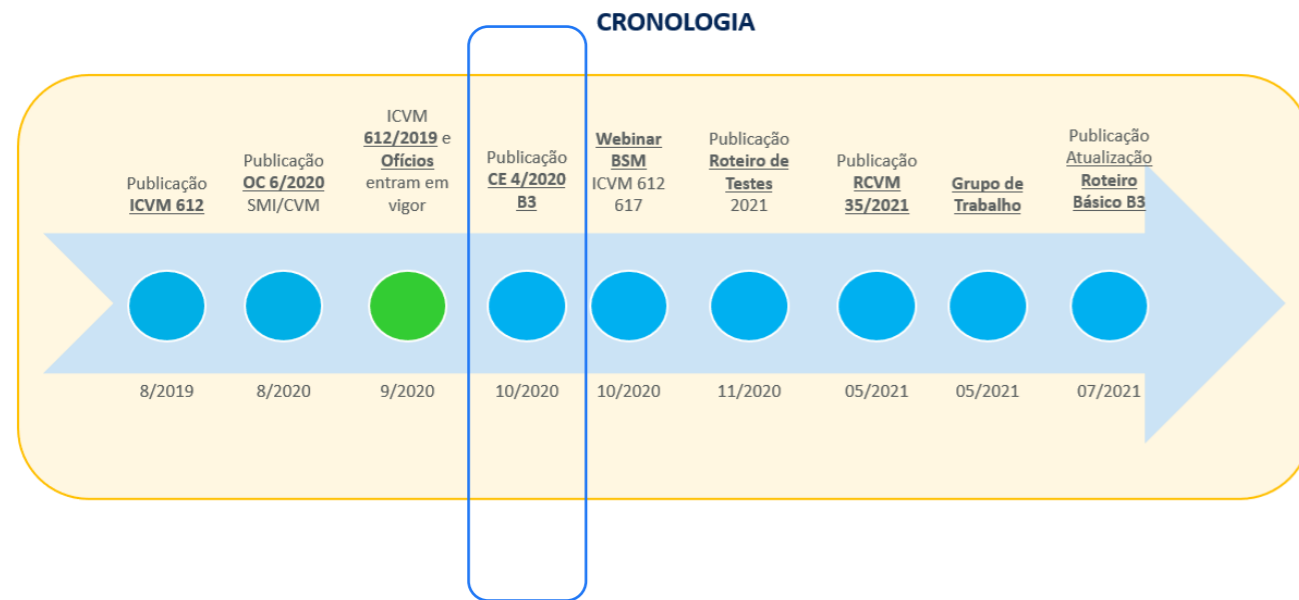
## Rules and Communications

### TIMELINE



# Stress testing the infrastructure's capacity

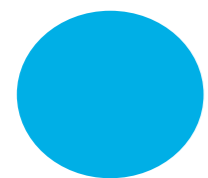
## Rules and Communications



BSM informed CVM of the consultation (via correspondence 3442/2020-DAR-BSM) regarding mandatory inclusion of intermediaries in testing, in appropriate intervals established in policy, to see how they work in stress scenarios for third parties' trading platforms.

CVM answered that it agrees with this understanding.

## External Communication 4/2020 B3



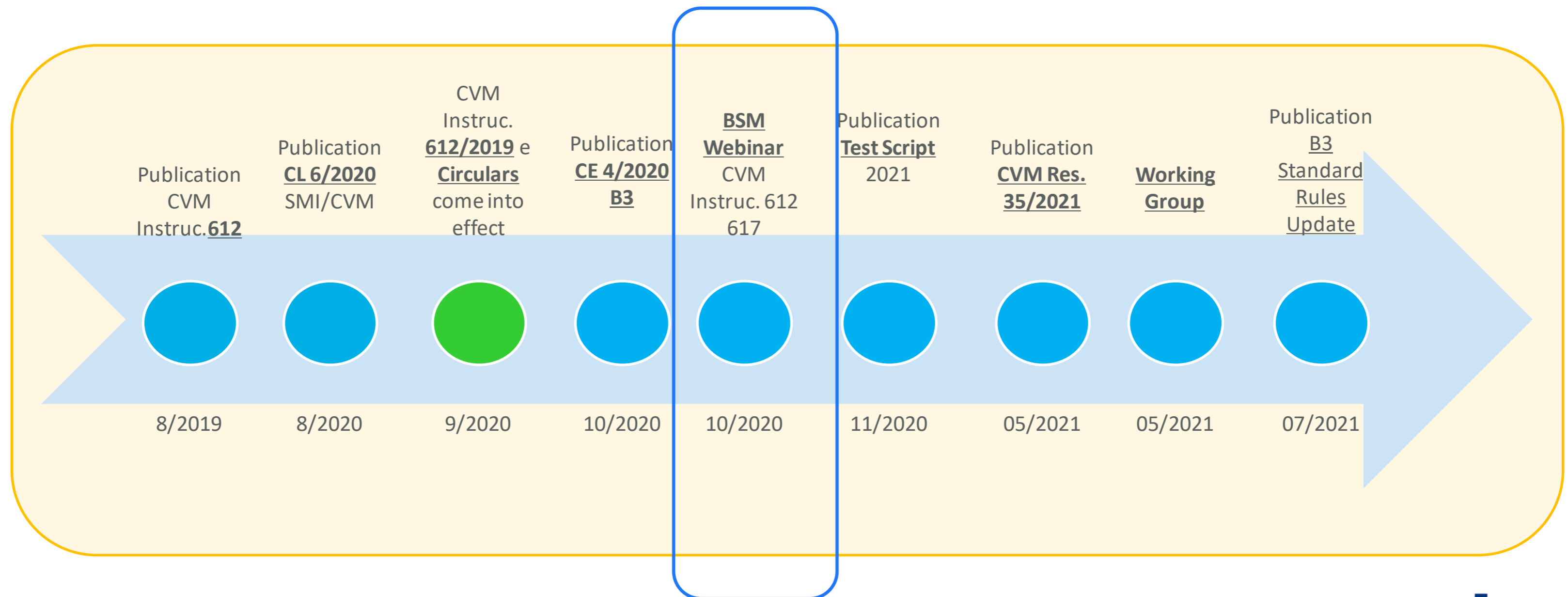
10/2020



# Stress testing the infrastructure's capacity

## Rules and Communications

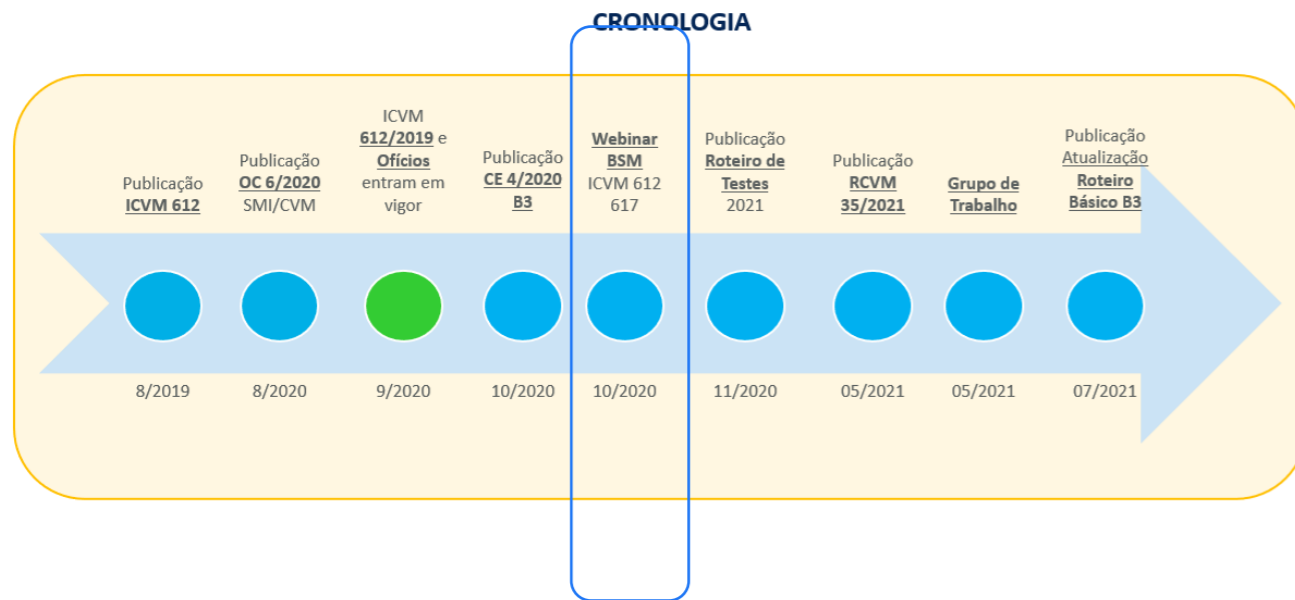
### TIMELINE



# Stress testing the infrastructure's capacity

## Rules and Communications

### BSM Webinar 612 and 617

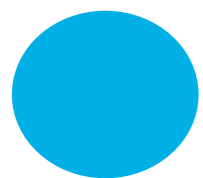


Clarification of doubts and presentation of expectations for compliance with CVM Instructions 612 and 617.

Among the subjects, the Participants were told:

- ✓ The objective and premises for performing infrastructure capacity tests in stress scenarios
- ✓ That BSM will assess compliance with the tests in the 2022 audit plan, noting that the Participant must have performed the first test in 2021.

## BSM Webinar 612 and 617



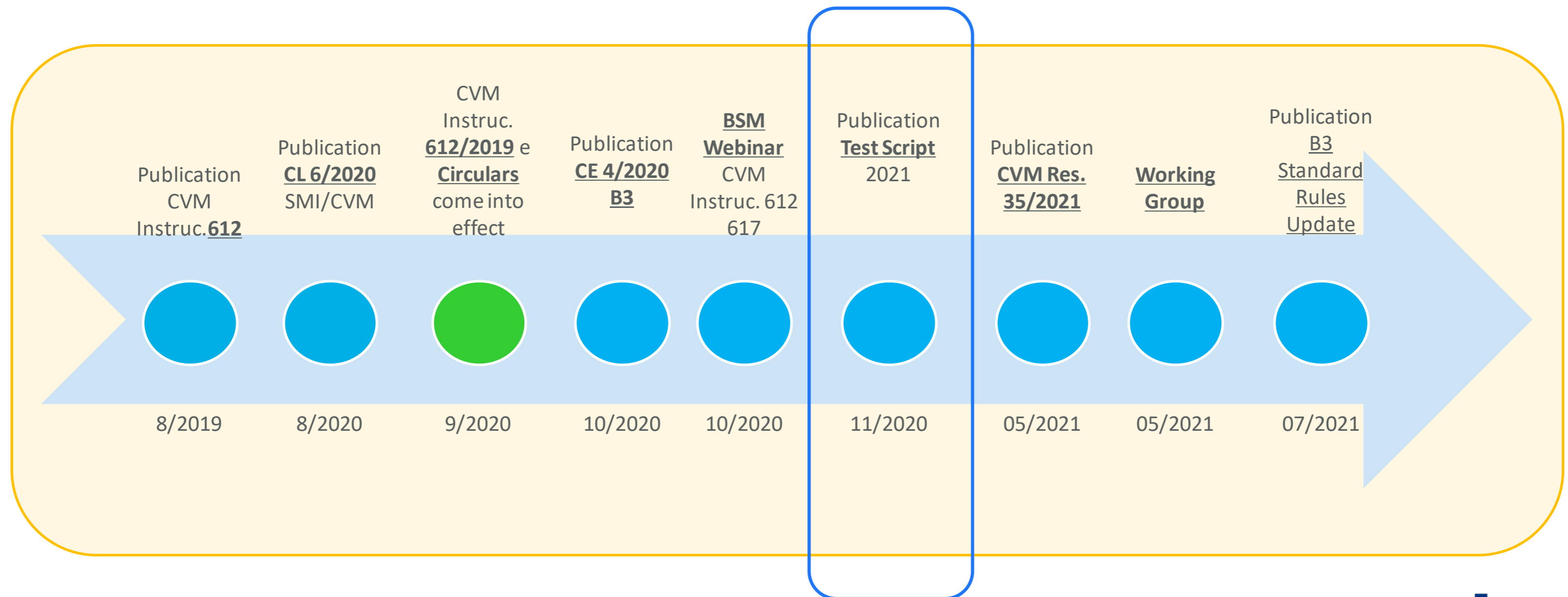
10/2020



# Stress testing the infrastructure's capacity

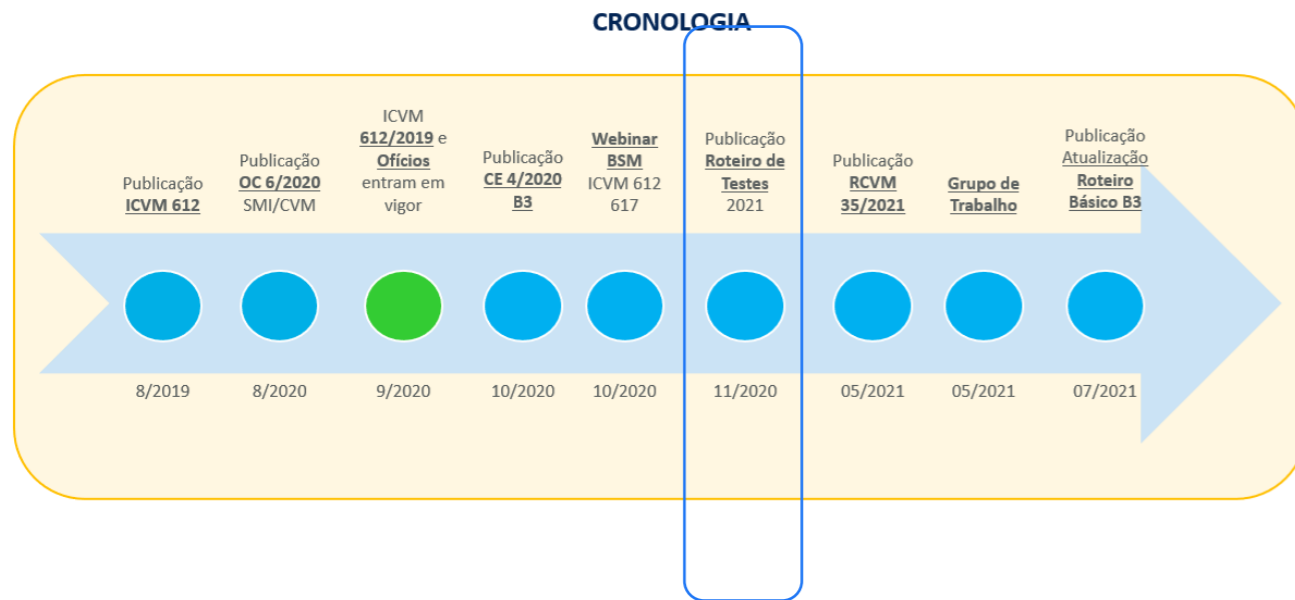
## Rules and Communications

### TIMELINE



# Stress testing the infrastructure's capacity

## Rules and Communications



## Test Script 2021

11/2020



### BSM 2021 Operating Audit

Publication of the Test Script for the 2021 Operating Audit Work Plan, to be executed in the Participants' operating audits.

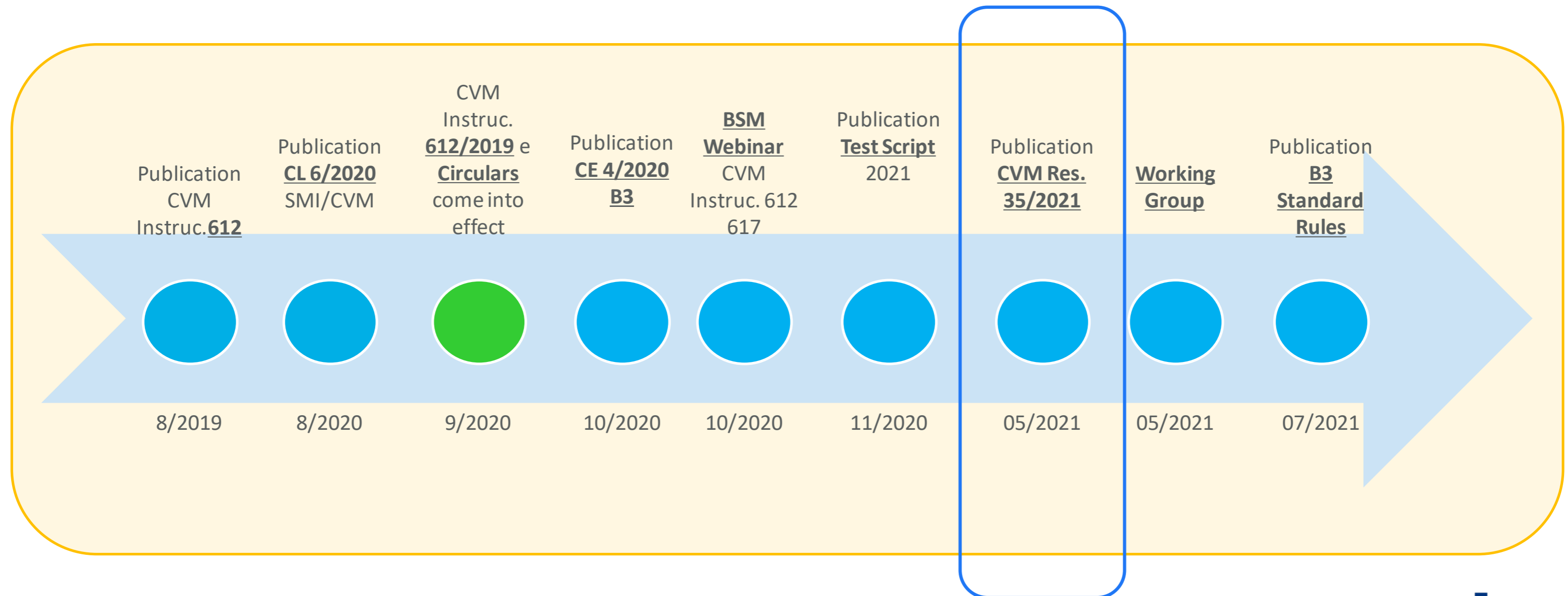
The Test Script explains:

- ✓ The premises that BSM observes in the infrastructure capacity tests in stress scenarios
- ✓ That the Participant must perform the first test in 2021.

# Stress testing the infrastructure's capacity

## Rules and Communications

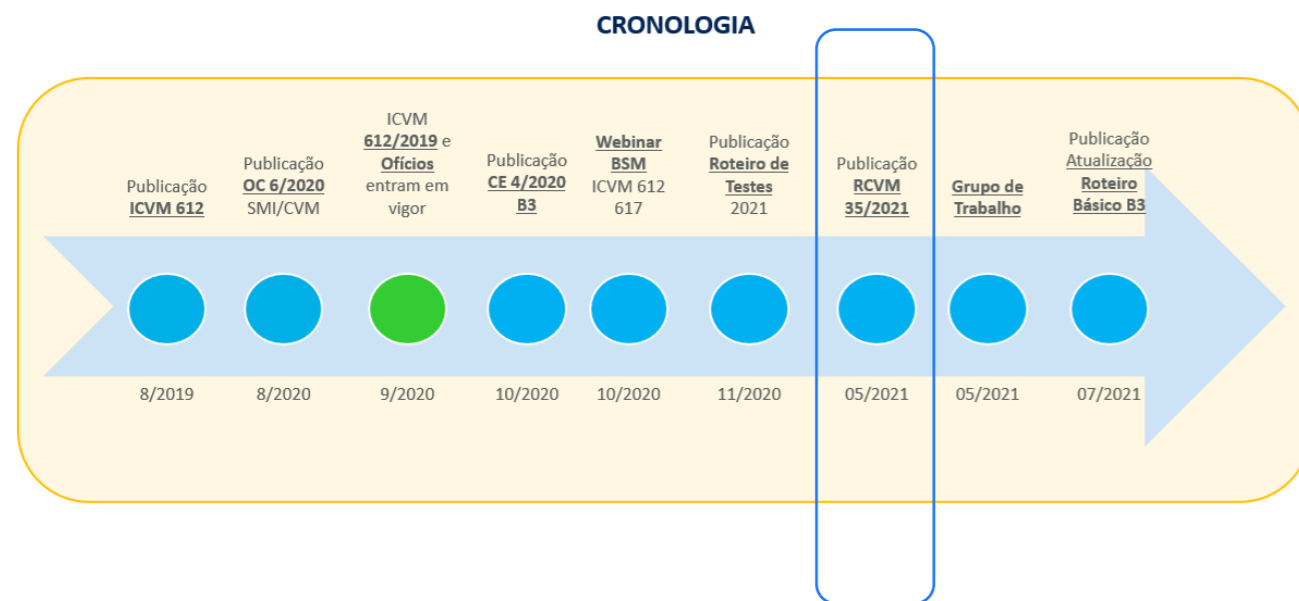
### TIMELINE



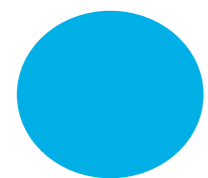


# Stress testing the infrastructure's capacity

## Rules and Communications



## CVM Resolution 35/2021



05/2021



### Paragraph 1 and subparagraph II, Paragraph 3 of Art. 33

The information technology structure must be compatible with the volume, nature and complexity of its operations,

so as to maintain client service, including during peak demand.

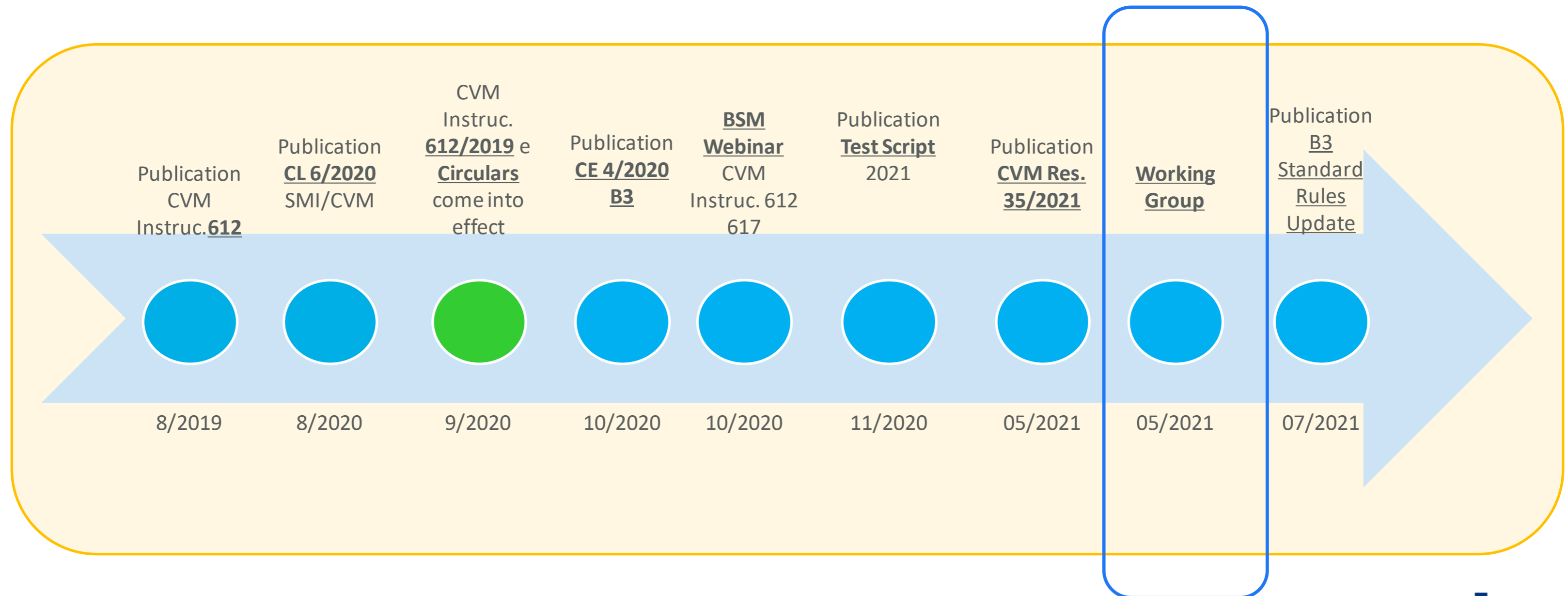
The technology systems that the intermediary uses must be submitted for tests at appropriate intervals, as set out in the

policy, to see how it works in stress scenarios.

# Stress testing the infrastructure's capacity

## Rules and Communications

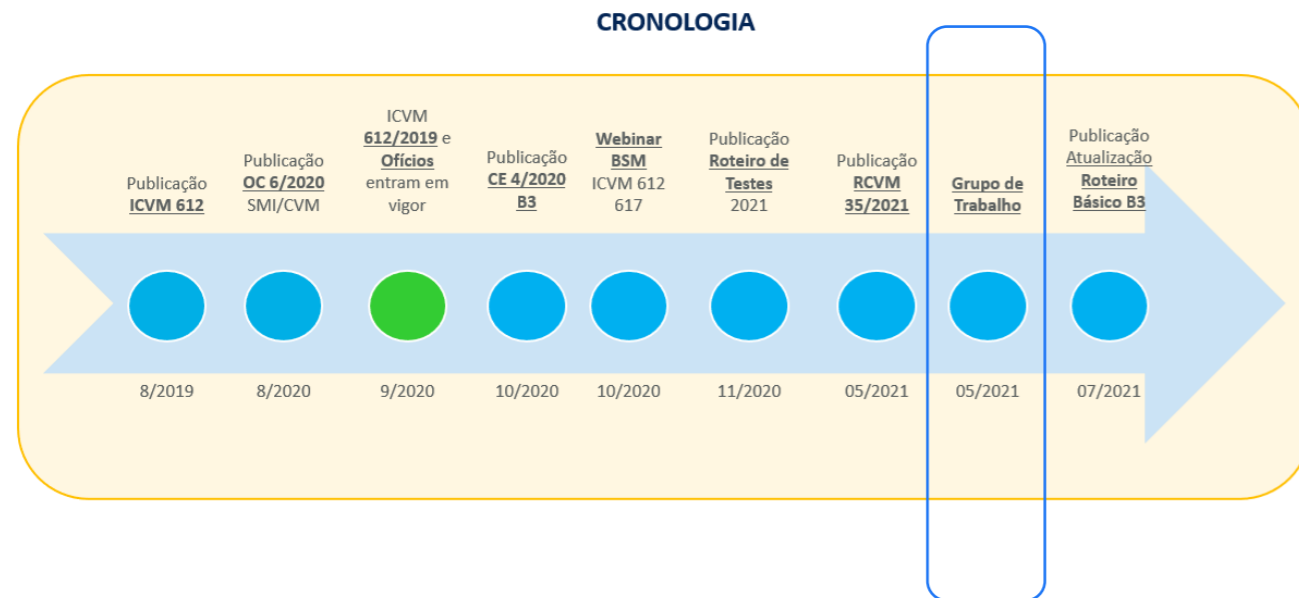
### TIMELINE



# Stress testing the infrastructure's capacity

## Rules and Communications

### Capacity Working Group



This demand originates from the BSM Advisory Committee and from Trading.

## Working Group

05/2021

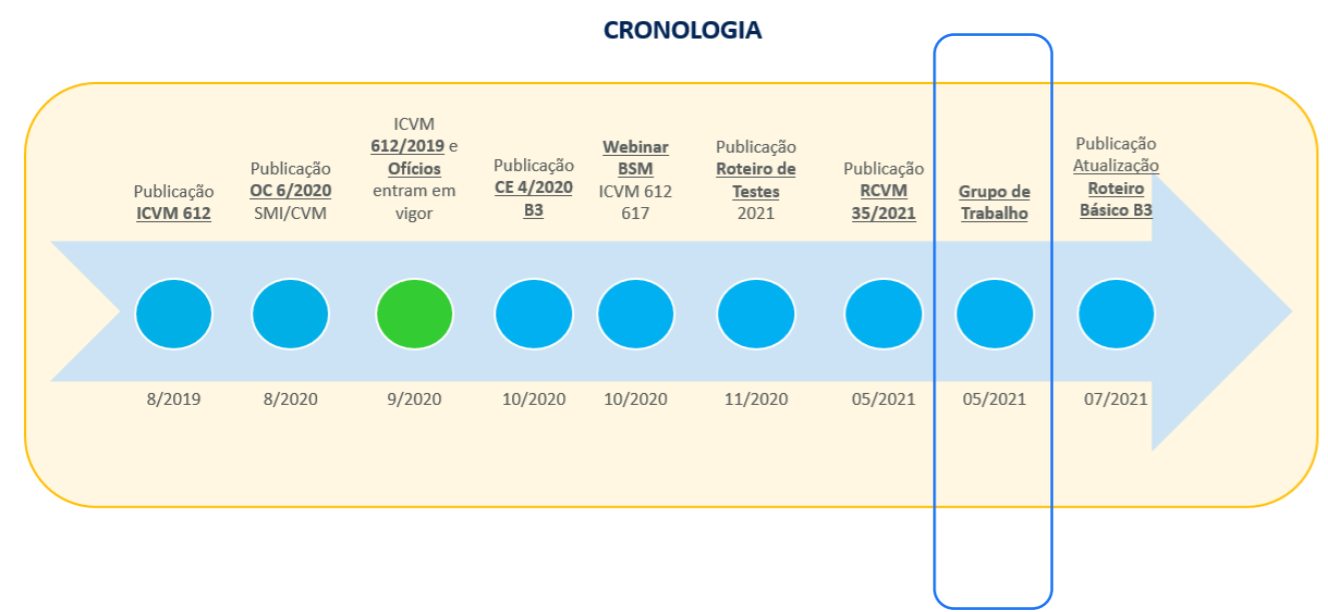


To meet this demand, Participants, B3 and BSM examined Capacity Tests required for 2021, under the aegis of a Technology Capacity Working Group that was also formed to draw up the complementary rule on Markets' Technology Capacity and Infrastructure Management (rule to be published).

# Stress testing the infrastructure's capacity

## Rules and Communications

### Capacity Working Group



We held five meetings (between May and July 2021) that strengthened understanding of the rules, expectations and premises that BSM has announced, and during which B3 and Participants discussed how to comply with the 2021 capacity test.

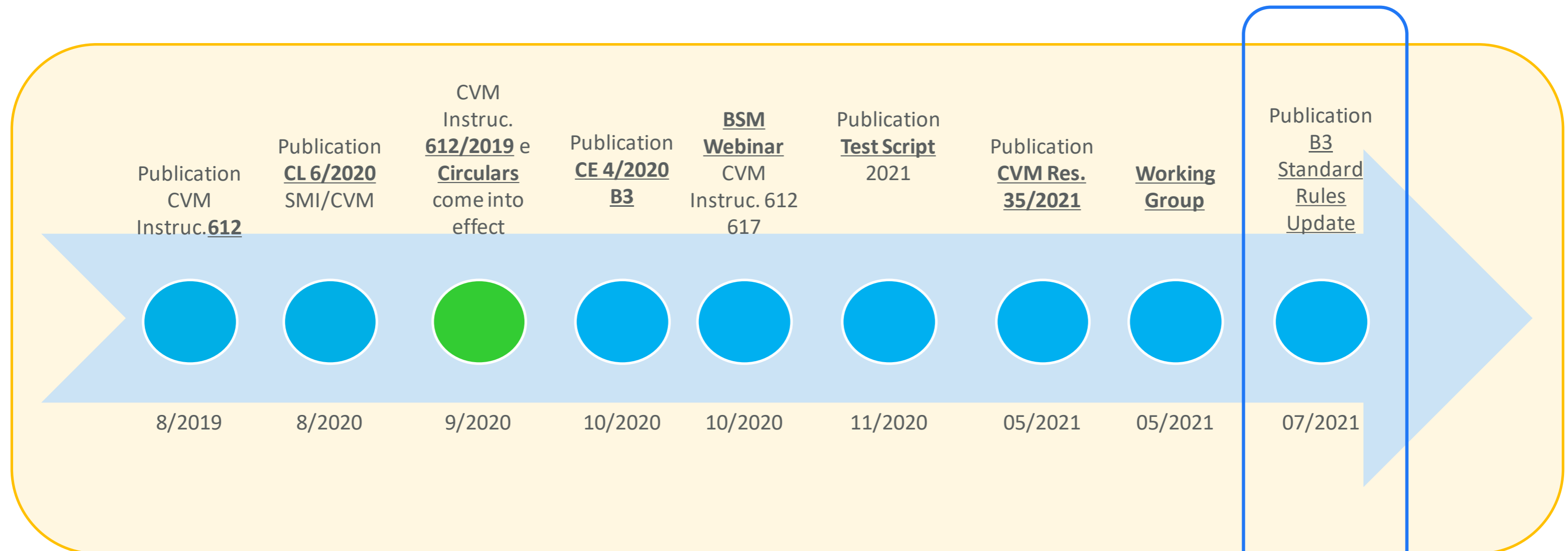
## Working Group



# Stress testing the infrastructure's capacity

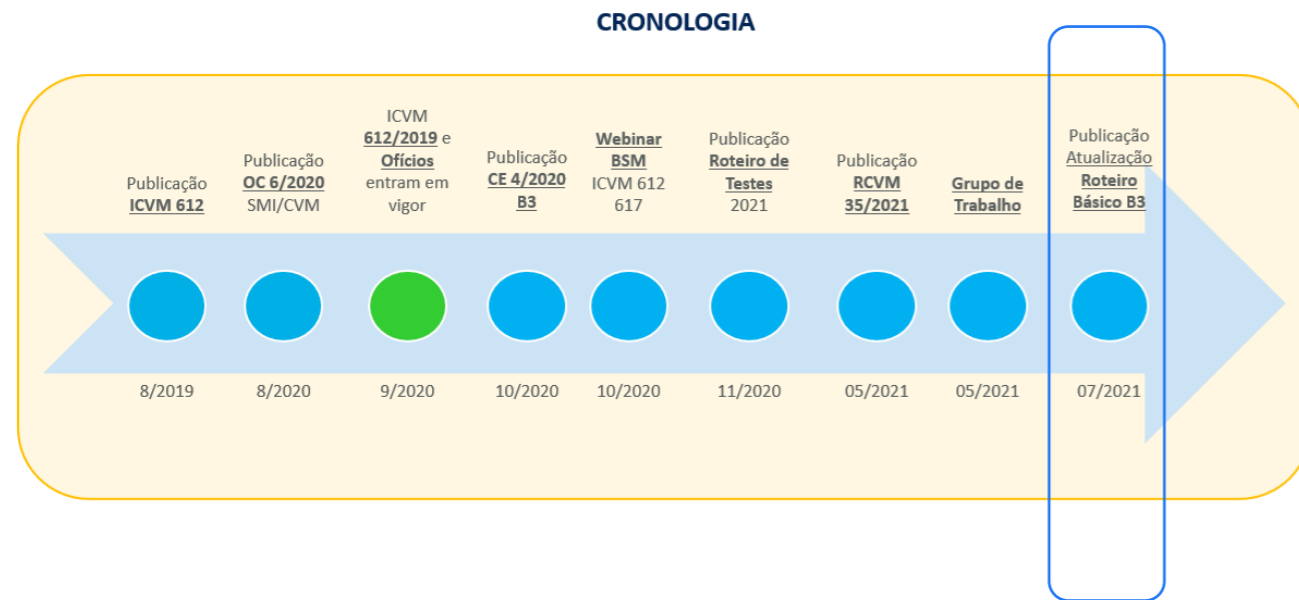
## Rules and Communications

### TIMELINE

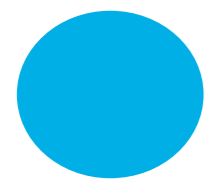


# Stress testing the infrastructure's capacity

## Rules and Communications



## Publication of the B3 Standard Rules Update



07/2021



### Publication of the B3 Standard Rules Update

The B3 Standard Rules Update establishes that the Participant must ensure its technology infrastructure is (i) compatible with the volume, nature and complexity of its operations and (ii) submitted annually for stress scenario capacity tests.

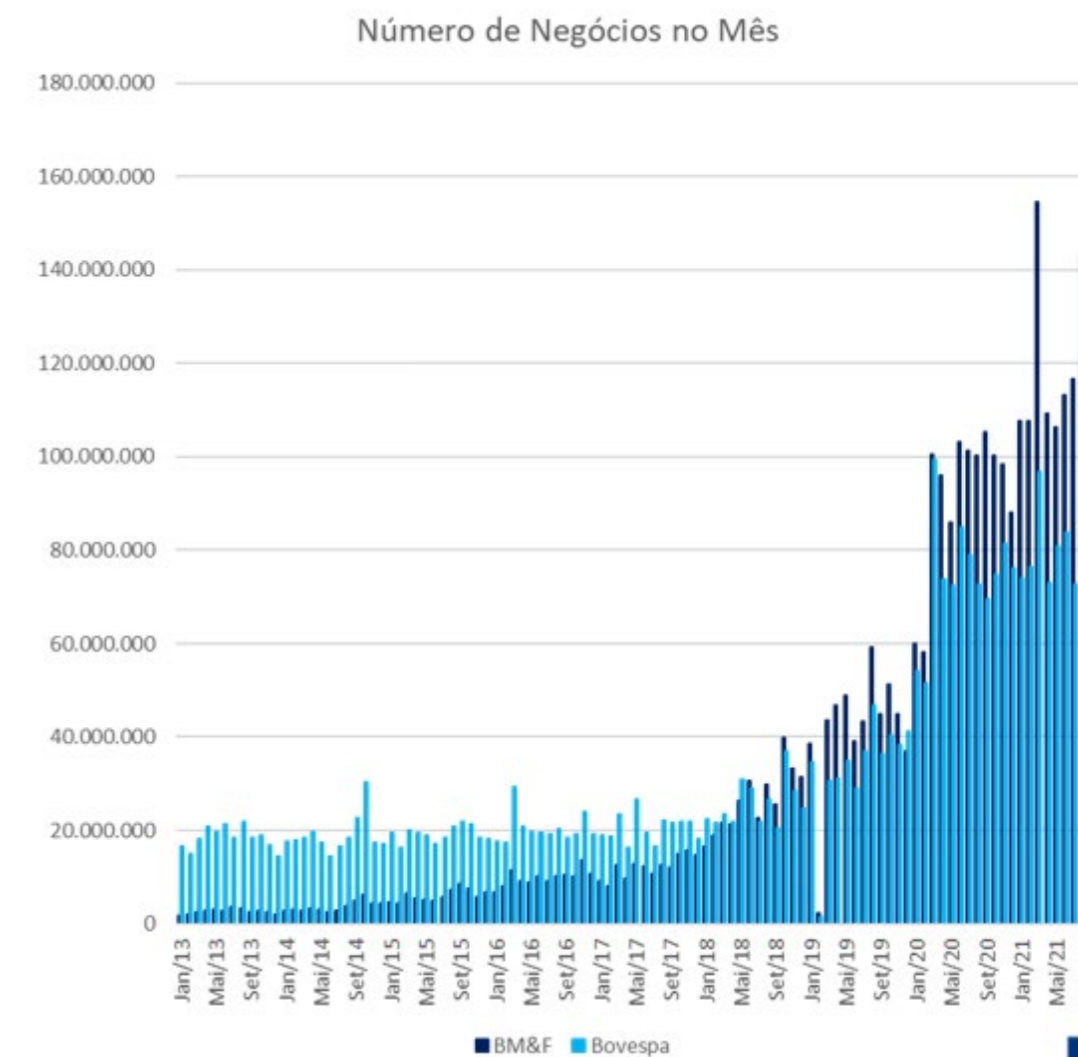
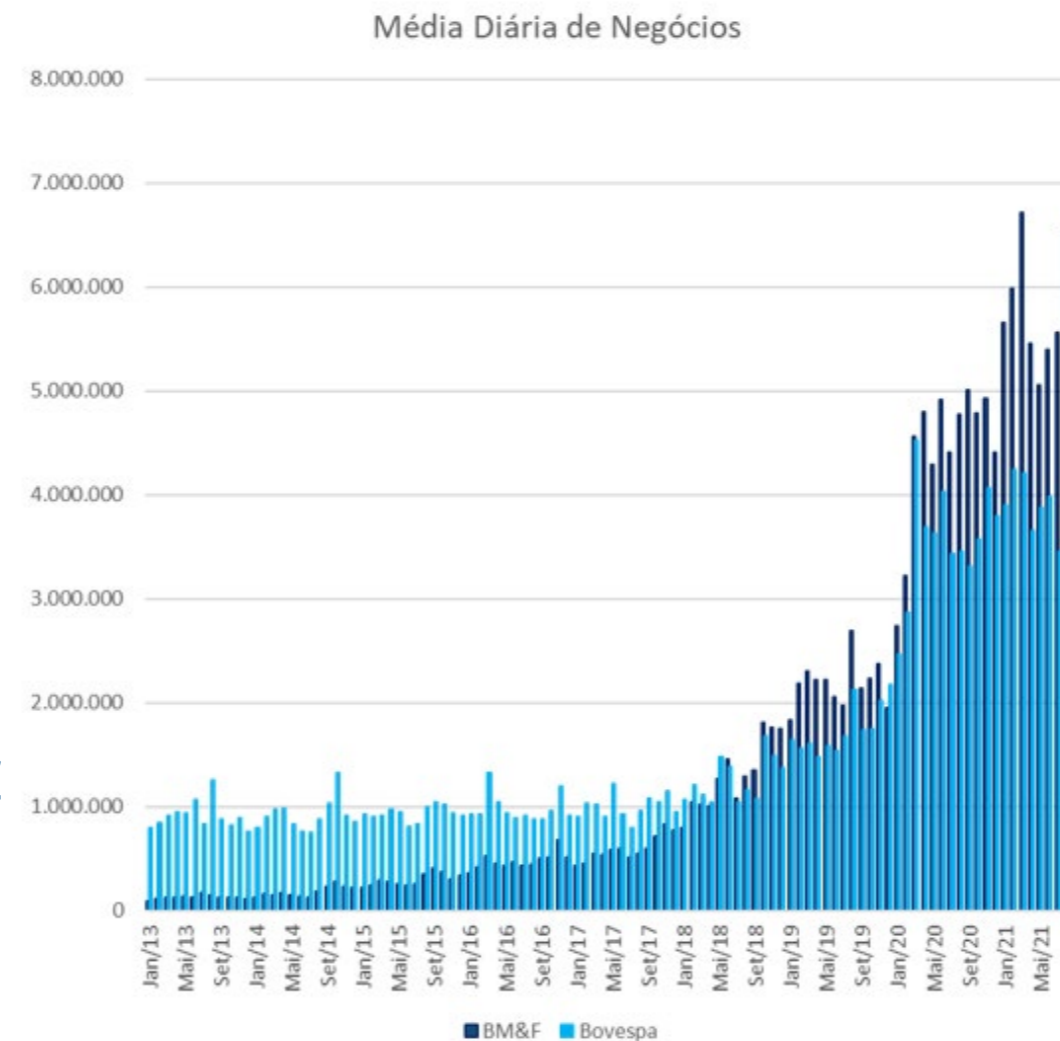
Effective as of January 3, 2022

## 2. Current Scenario

# Stress testing the infrastructure's capacity

## Current Scenario

- ✓ Growth trend in trading volume.
- ✓ Instabilities and failures registered in trading platforms, originating from trading peaks.
- ✓ The aim here is for the Participant's technology structure to keep up with these peaks and be compatible with trading volumes.





## 3. Scope

# Stress testing the infrastructure's capacity

## Scope

### How the scope was defined for capacity test compliance in 2021:



- ✓ CVM helped define premises for test compliance by the Participants in 2021 (announced in the BSM Webinar of October 2020).
- ✓ The Working Group defined how Participants should comply with the test in 2021 (based on the premises defined with CVM)  
(Covered by the Working Group between May 2021 and July 2021)
- ✓ How Participants comply with the test in 2021 in line with CVM in August /2021.

PREMISES

FORMA DE CUMPRIMENTO

# Stress testing the infrastructure's capacity

## Scope



### PREMISES

- ✓ **First Stress Test:** by the end of 2021 (BSM assessment to be in 2022)
- ✓ **Volume:** Volume peak (as of January 2020) + Increment
- ✓ **Period:** No more than one year
- ✓ **Scope:** Trading (Trading Infrastructure including third parties' platforms)

### HOW TO COMPLY

Premises  
defined with  
CVM

(\*) Premises announced in October 2020 in the BSM Webinar CVM Instructions 612 and 617

# Stress testing the infrastructure's capacity

## Scope



### HOW TO COMPLY

- ✓ **Scope:** Trading
  - Order Management System (OMS) + Market Data Processors (Quotation)
- ✓ **Outside of the Scope:**
  - Order Entry at B3
  - Drop Copy (message to the BackOffice systems)
  - Investor Management's Cross Trading Systems
  - Post-Trade Systems
- ✓ Option of performing one test per provider (provider's infrastructure processed).  
Participants contacting the tool: arrange testing and present and process results

**The Working  
Group Defines  
How to Comply**

# Stress testing the infrastructure's capacity

## Scope



### HOW TO COMPLY

#### ✓ Minimum Indicators

- Number of trades: Simulates the number of trades the participant executes on one day plus the increment.
- Number of orders: Simulates the number of orders that the participant enters on one day plus the increment.
- Number of clients: Simulates the number of simultaneously connected clients with a transaction plus the increment. This scenario repeats Every ten minutes.
- Expected internal latency indicators: Period between the intermediary's order receipt and order entry to B3, and between the intermediary's receipt of order status returns and their being sent on to the investor.

Private Data

- Number of trades: Simulates double the number of trades executed in the market on one day (Market data).
- Number of messages: Simulates double the number of messages on one day (Market data).
- Number of messages: Simulates double the peak of messages observed in one minute. This scenario repeats for ten consecutive minutes.

Public Data

(\*) The Public Data indicators measure the processing of Market data and Publication for the client.

The Working Group Defines How to Comply

# Stress testing the infrastructure's capacity

## Scope



The Working Group Defines How to Comply

HOW TO COMPLY

[B]<sup>3</sup>

### ✓ Base Numbers - Market Data (to be published by B3)

Public Data

B3 base numbers for participants' tests. The increment must be 100% over the numbers below:

Trading			
Type	BM&F	Bovespa	Total
Number of trades on the day	9.3	5.7	15
Market data messages (MBO) on the day	99	297	396
Peak observed in one minute	1.8	1.4	3.2
Peak observed in one second	0.07	0.05	0.12

All numbers in millions.



# Stress testing the infrastructure's capacity

## Next Steps

- ✓ **2021:** Support and Guidance for Participants in the Capacity Tests.
- ✓ **1<sup>st</sup> Quarter of 2022:** Specific Audit – Capacity Test.
- ✓ Market Result Assessment, for planning the next capacity tests.

(\* ) Recortes do Working Group alinhados com o Regulador

## 4. Capacity Management - B3



# Stress testing the infrastructure's capacity

## Capacity Management - B3

[B]<sup>3</sup>

### ✓ B3 Capacity Tests:

- Tests performed at shorter than one-year intervals
- Encompassing the entire trading and post-trade chain
- Segregated and integrated internal tests performed over the year

B3 increment of  
100%

### ✓ Business Continuity Plan:

- Contingency tool for the entire PUMA ecosystem
- Tests performed with the participation of the market

(\*) Recortes do Working Group alinhados com o Regulador



# Stress testing the infrastructure's capacity

## Capacity Management - B3

[B]<sup>3</sup>

✓ **B3 Complementary Rule for Capacity Management:**

- Based on four principles:
  - I. Documentation:** details the documentation required for stress tests
  - II. Tests:** details the minimum indicators for capacity tests and for drafting the Business Continuity Plan (BCP)
  - III. Enhancement of systems and solutions:** aligns the requirements for capacity management mechanisms with strategic planning
  - IV. Governance:** institutes internal approval of the capacity testing results

# Stress testing the infrastructure's capacity

## Capacity Management - B3



### ✓ B3 Complementary Rule for Capacity Management:

- For future publication
- Under construction with the market and with the support of BSM, through working groups
- Future indicators:

Processes	Status of the indicators
Trading	Concluded
Allocation, settlement and custody	Awaiting discussion
Risk, colateral and margin	
Accounts registration	
Infrastructure	

# Any questions?



THE RIGHT PATH IS ALWAYS  
THE BEST PATH

