MiFID II

WHY A COHESIVE TEST STRATEGY IS KEY TO SUCCESSFUL MiFID II IMPLEMENTATION

The Markets in Financial Instruments Directive, more commonly known as MiFID II, is one of the most talked about regulations in the financial services sector. Its impacts are far-reaching both in terms of the macro structure of the overall financial markets and the internal functional areas within the financial institutions themselves. With the deadline for MiFID II compliance having already been delayed by a year to January 2018 in response to concerns about the complexity, implementation programmes should already be well underway in most financial institutions.

In addition to the data and operating model challenges already discussed in our previous MiFID II insight papers, many firms are also struggling with the testing aspect. Although regulatory testing is not a new concept, MiFID II testing is proving to be more challenging than previous testing programmes undertaken to support other regulations such as Dodd Frank, EMIR or Volcker due to the sheer breadth of the regulation and its impact on multiple functional domains.

It is clear that regulated firms that are unable to structure and deploy a cohesive MiFID test strategy will struggle to meet the framework's significant technology implementation obligations. In this, the third in a series of insight documents looking at MiFID II compliance, we consider the importance of adopting a cohesive test strategy.
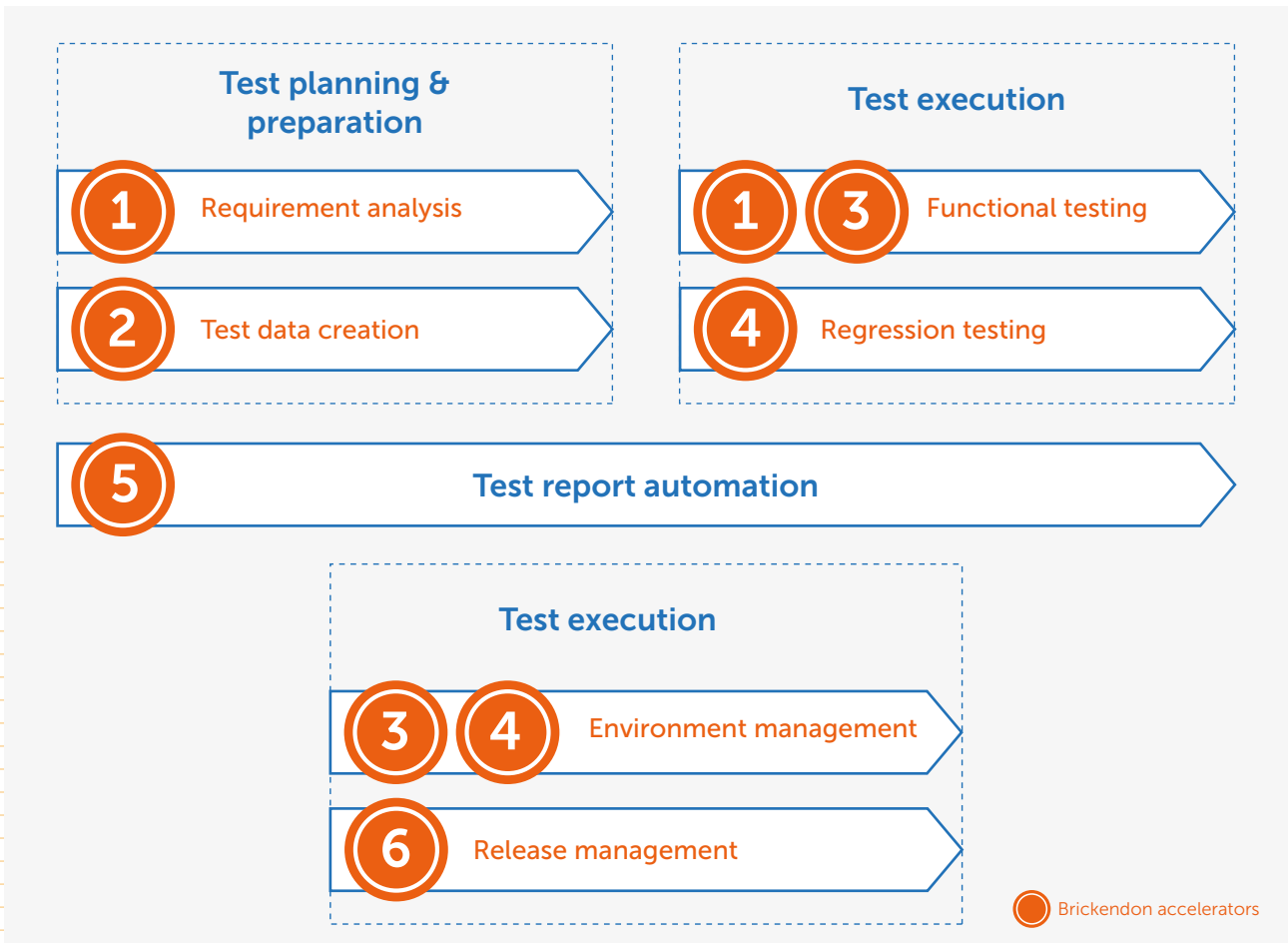
KEY TESTING CHALLENGES

The table below shows the key testing challenges that organisations are currently facing in attempting to comply with the MiFID regulations:

Challenge	Explanation	Key Examples in MiFID II
Complex testing environment	Complex testing environment due to the extensive scope of products (almost all asset classes) and multiple reporting requirements (e.g. transaction reporting, best execution, post-trade transparency).	• Transaction reporting impacts many asset classes (rates, credit, FX and equities) and requires data from multiple source systems. • Areas impacted include: sales and trading (pre-trade transparency, algo-trading); order management (transparency and best execution); golden sources (instrument data, counterparty data); operations (transaction reporting); and compliance (product governance).
Unclear requirements	With less than three months until the compliance deadline, the details of the requirements are still being discussed. The uncertainty surrounding the exact requirements is negatively impacting testing strategies.	• MiFID II requires investment firms to provide a breakdown of costs and charges, but the granularity of this breakdown is still under discussion. • The concept of Traded on a Trading Venue (TOTV) under transparency rules continues to be the subject of discussion in various industry forums.
Poor data quality	Regulatory compliance requires data from multiple source and vendor systems. With multiple products and systems in scope, there is a high probability that data sourced from upstream systems will be inconsistent and of poor quality.	• The quality of data is unlikely to be consistent where similar product sets are being traded across different business lines and systems within the same business (e.g. FX forward, structured products). • Reference data (e.g. passport numbers and instrument data) is not always available in golden sources. Any derivations based on them, e.g. Legal Entity Identifier (LEI), International Securities Identification Number (ISIN), will lead to incomplete data reporting under MiFID II.
Lack of end-to-end environment	Setting up end-to-end testing environments is challenging due to the multiple systems and asset classes involved.	• Transaction reporting and end-to-end testing both need test environments that are connected to golden source vendor systems, Approved Reporting Mechanisms (ARMs) and trade capture vendors.
Delayed issue resolution	The involvement of multiple systems internally and externally make it difficult to perform root-cause analysis on any issues raised during testing cycles and resolve them in a timely and accurate manner.	• Due to the number of internal and external systems involved, system owners are typically only signing off testing from their own systems because end-to-end data is not readily available.
Lack of vendors' readiness	Although some firms will be able to complete end-to-end testing across internal application architectures, they will depend upon the readiness of external vendors for a successful completion of their testing strategy.	• Special programmes, such as ARMs, are still being developed to address transaction reporting requirements. • Industry testing timelines with various vendors extend all the way into end of December.

BRICKENDON'S FOUR-PART TESTING FRAMEWORK AND SOLUTION

At Brickendon, we believe that the testing challenges described in the previous table can be effectively handled by the deployment of a robust solution framework across four inter-linked stages. The effectiveness of the process can be aided by the use of Brickendon's 'accelerators' – testing solutions and automation frameworks which are vendor agnostic and can be applied to any type of project delivery environment, including DevOps or Agile.

Fig.1: Brickendon's Four-Part Testing Framework

Test planning & preparation

1 Requirement analysis

2 Test data creation

Test execution

1 3 Functional testing

4 Regression testing

5 Test report automation

Test execution

3 4 Environment management

6 Release management

○ Brickendon accelerators

Brickendon accelerators

1	Time Check Point System (TCPS) – an innovative test estimation model to estimate and allocate resources accurately in a test project
2	Auto Reconciliation – a data reconciliation process which reduces test data quality issues resulting from a mismatch in environments
3	Continuous Testing Solution (CTS) – a framework to perform continuous integrated testing during and after project completion
4	Automated Intelligence Regression Testing (AIRT) – a tool-agnostic solution which reduces regression testing risk by intelligently running the tests relevant to the impacted code
5	Real-Time Auto Reporting Framework - a common reporting framework accessible to project stakeholders, management and testing teams
6	TestOps – a step-by-step process to analyse, strategise and establish a process to ensure specific criteria is met at certain stages of the programme, where the QA team is responsible for end-to-end delivery

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1. TEST PLANNING AND PREPARATION

An effective testing strategy begins with a robust and well-structured requirements stage. Analysis of requirements should be performed to create functional and regression test scripts. This is followed by the creation of test data covering different test scenarios. To avoid any defects due to test data inconsistency, the quality of the data must be validated before it is released into the system under test conditions.

Brickendon Accelerators:

(1) (2)   TCPS and Auto Reconciliation

2. TEST EXECUTION

Test execution involves the testing of components and will need to include both functional testing and regression testing:

Functional Testing: The functional testing scope in MiFID II is huge and therefore using the traditional methods of testing every requirement will be extremely time consuming. To mediate this complexity, testing can be divided into four scenarios – the choice of scenario being dependent upon the number of databases and object types to be tested.

Examples of object type are trade, quotes, executions, orders etc.

- One object and one reporting database (e.g. transactional reporting)

- One object and multiple reporting databases (e.g. post-trade reporting)

- Multiple object and one reporting database (e.g. trade recreation report)

- Multiple object and multiple reporting databases (e.g. any intraday report)

The deployment of this categorisation framework, together with Brickendon's accelerator will significantly reduce the effort required to complete functional testing.

Brickendon Accelerators:

(1) (3)   TCPS, CTS

Regression Testing: As the development of MiFID II has been delivered in phases, firms must devise a strategy for regression testing to ensure that any existing functionality is properly tested. Regression testing can start at the same time as functional testing, run in parallel, or be initiated after the completion of functional testing. Firms should prepare for iterative testing as development teams will deliver multiple "code drops". This will require a risk-based strategy, based on impacted functionality to ensure faster cycles of regression testing.

Brickendon Accelerators:

(4)   AIRT

3. TEST REPORT AUTOMATION

Perhaps the most significant demand on testing teams and SMEs is the requirement for regular, iterative status reporting to various stakeholders. This overhead is exacerbated in MiFID II as simultaneous testing streams will be delivered for multiple areas. Manual status reporting in this complex, dynamic environment will not only prove to be time consuming but also prone to errors. Automated test reports that can be customised to meet the requirements of multiple key stakeholders at the same time will help to solve these challenges.

Brickendon Accelerators:

5	Real-time test report automation framework

4. TEST CONTROL ENVIRONMENT

Successful testing depends upon the quality of the control environment in which it is conducted. Control environment maintenance is an ongoing process requirement throughout the project lifecycle right up until the eventual successful deployment of the code into production.

Environment Management: Unstable test environments hinder the testing process. This instability is typically caused due to the lack of data availability, version mismatch and incorrect code deployment. To address this, controls must be deployed to ensure that checks are performed before testing is started. Environment monitors should then be used to track these checks and the testing team should own the environment management.

Brickendon Accelerators:

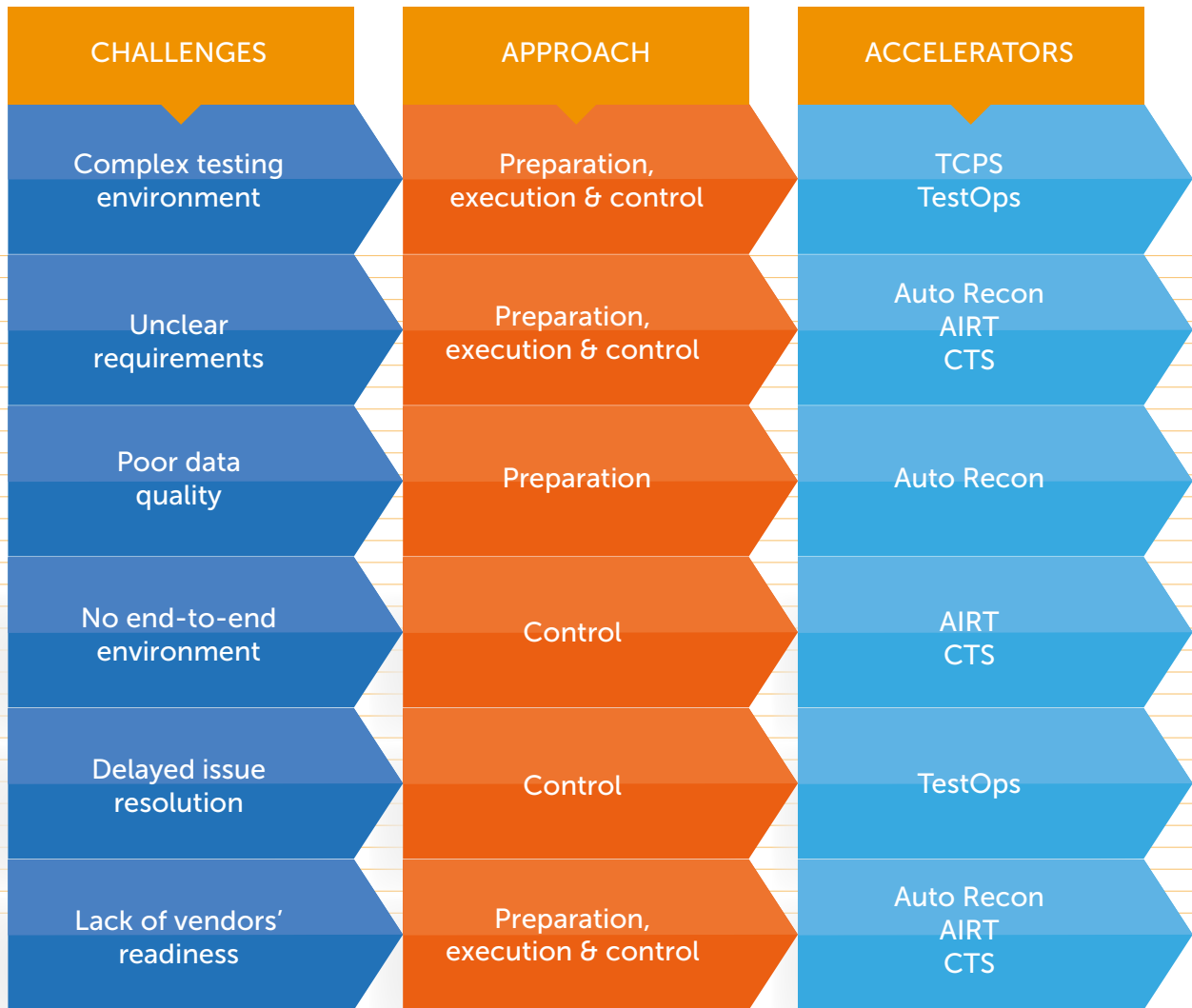| **3**	**4**	**6**	CTS, AIRT, TestOps

Release Management: After testing is signed off, the key to successful release management is a simplified build deployment process based on running automated scripts and a concise runbook. The goal of release management should be "one-click deployment" and "auto-checkouts". This is possible if the testing team works closely with both the developers and the release teams in an integrated manner.

Brickendon Accelerators:

6	TestOps

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We believe that firms that are able to deploy holistic and structured approaches to test management, including the focused use of tools and accelerators, will be well placed to successfully address the MiFID II testing challenges we identified earlier in the paper.

Fig.2: When to use Brickendon's accelerators

CHALLENGES	APPROACH	ACCELERATORS
Complex testing environment	Preparation, execution & control	TCPS TestOps
Unclear requirements	Preparation, execution & control	Auto Recon AIRT CTS
Poor data quality	Preparation	Auto Recon
No end-to-end environment	Control	AIRT CTS
Delayed issue resolution	Control	TestOps
Lack of vendors' readiness	Preparation, execution & control	Auto Recon AIRT CTS

HOW CAN BRICKENDON HELP?

Brickendon offers a range of testing methodologies, accelerators and tools that can achieve a step-change in the efficiency and effectiveness of front-to-back testing processes. They can be deployed as an integrated end-to-end solution or, as 'plug-and-play' components that can be adapted to any programme delivery environment or set of business requirements. Brickendon advocates the use of open-source automation tools or leveraging the existing automation tools, which will enable, for example, our Automated Intelligent Regression Testing (AIRT) solution to be quickly and easily plugged into an existing technology architecture.

Brickendon's testing experts can help devise a comprehensive test strategy for MiFID II compliance or simply address gaps in an existing strategy, including the provision of automated reporting.

And finally...

There is no doubt that failing to adopt a logical end-to-end testing framework puts organisations at risk of fragmented and incomplete delivery of programmes into production. It also increases the risk of additional costs and effort because of the rework required when regulations are not met.

At Brickendon, we believe that now is the time to address these issues in a holistic way. The adoption of enhanced testing strategies, which not only address the particular challenges of MiFID II compliance but can subsequently be extended or refined for other current or future regulations, will improve organisations' ability to more effectively manage their portfolios of regulatory obligations.

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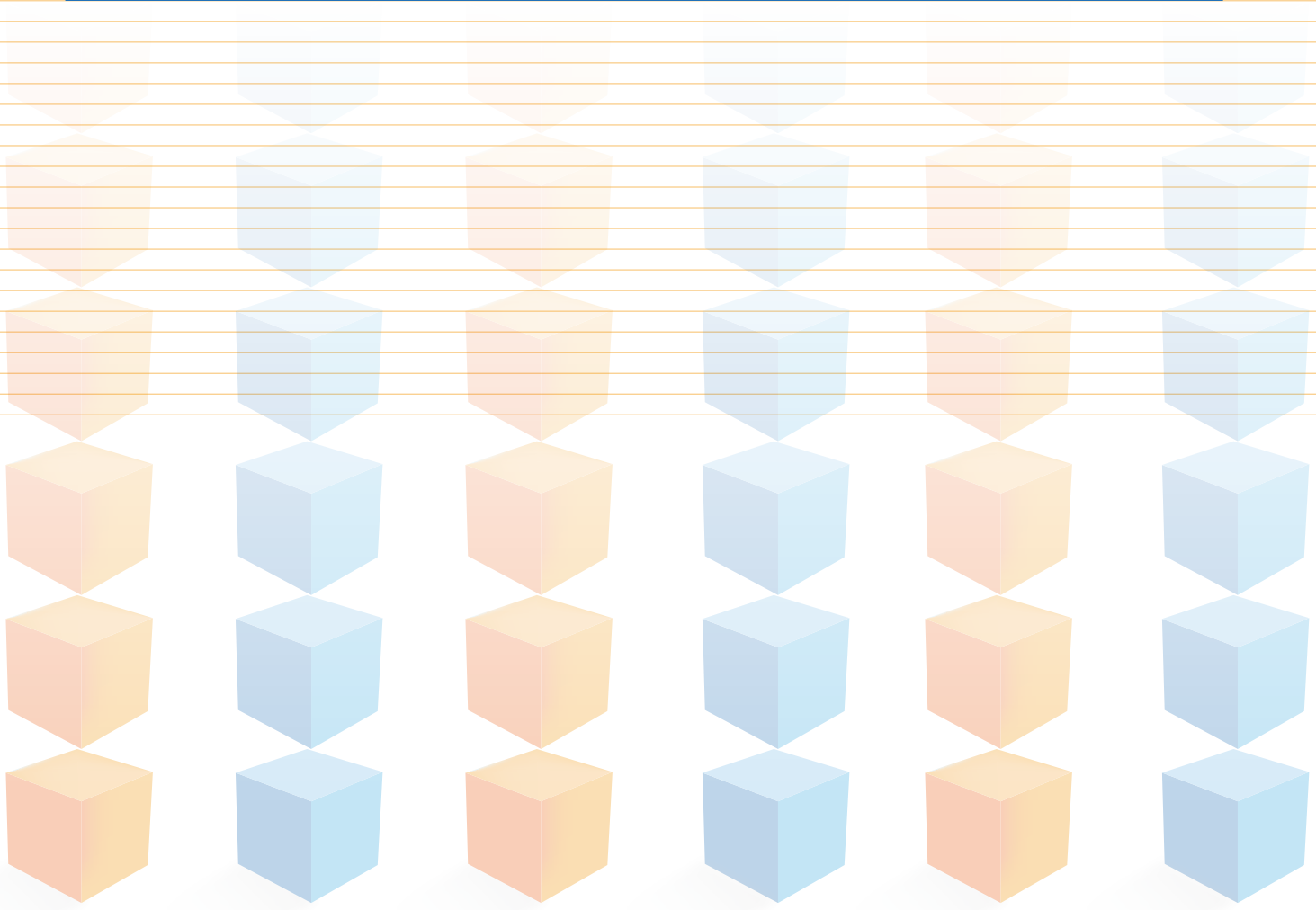
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ABOUT US

Brickendon is an award-winning global transformational management and technology consultancy specialising in innovative solutions that save our clients time and money. Our aim is to deliver transformational change across our three key offerings of Advise, Change and Do, through our five practice areas: Data, Quality & Test, Risk & Regulation, Strategy and Digital. This helps ensure our clients see positive results in weeks, not months or years.

Employing domain experts with over 10 years' respective experience in specialist sectors, Brickendon is built on providing lasting, cutting-edge solutions designed to improve profitability, efficiency, competitiveness and innovation across the financial services sector. We are passionate about what we do and thrive on transforming companies to increase their competitive edge.

Started in London in 2010, the driving force behind Brickendon's global strategy is transforming the traditional consultancy model. We now have multiple offices across Europe and the US, including London and New York.

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