

White Paper

THE TECHNICAL IMPLICATIONS OF MiFID WITH A FOCUS ON SELL-SIDE FIRMS

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The European Union's Markets in Financial Services Directive (MiFID) involves the most far-reaching reform of any major financial market ever undertaken. BearingPoint is developing a series of white papers to elaborate on how the directive will affect the financial services sector. The first in this series, *Preparing for MiFID*, published in July 2005, assessed the overall impact on the financial services marketplace and offered some views on what steps companies can take to prepare for these changes. This paper, *The Technical Implications of MiFID – With a Focus on Sell-Side Firms*, the second in the series, looks at some specific ways in which firms will be affected and how they can develop a framework for managing the IT changes required. Future papers will look at how market infrastructures and buy-side firms will be affected and will compare MiFID with the US Securities and Exchange Commission's Regulation National Market System.



1. INTRODUCTION:
A FAR-REACHING DIRECTIVE

The aim of the Markets in Financial Instruments Directive (MiFID) is to promote a single market in the European Union for wholesale and retail transactions in financial instruments and to improve consumer protection. It is likely to come into effect in November 2007 and will replace the Investment Services Directive (ISD), which has governed the activities of investment firms in the EU since the mid-1990s.

MiFID is part of the EU's Financial Services Action Plan (FSAP), which was due to have created a single market in financial services by 2005 but is running slightly behind schedule. The European Parliament adopted MiFID in April 2004, but it took the European Commission, assisted by the Committee of European Securities Regulators (CESR), until February 2006 to publish the draft technical implementing measures. Once approved by the European Parliament and the European Securities Committee, these measures should be adopted by the Commission in the Summer of 2006.

The implementing measures cover four key areas:

- **Organisational requirements:** rules on how investment firms should be organised, including compliance arrangements, internal systems and controls, outsourcing, record-keeping, business continuity, and management of conflicts of interest.
- **Conduct of business:** investment firms will have to follow rules on how they classify their clients, marketing communications, the provision of information about the firm and its services, client agreements, knowing their customers, execution-only services, best execution (the firm has to obtain the best possible result for the client, taking into account not just price but also speed and other factors), client order handling, and reporting information to clients.
- **Markets and transparency:** firms will have to comply with comprehensive pre- and post-trade transparency regimes for trading shares on regulated markets (i.e. stock exchanges), on multilateral trading facilities (MTFs) and through systematic internalisers to enforce a level playing field.
- **Transaction reporting:** this will apply to all financial instruments admitted for trading anywhere in Europe, even when transacting outside of Europe.

In Addition, the measures cover cross-border business, branches and “passporting”: MiFID will extend the range of activities and instruments covered by the EU’s current “passporting” arrangements – the system under which firms authorised in one member state can provide investment services in other member states (either cross-border or through a branch) without having to be authorised separately in each member state.

Simulations conducted for the Commission suggest that the benefits of establishing integrated, deep and liquid equity and corporate bond markets are likely to be significant. However, the Commission’s cost-benefit equation has been criticised by the investment services industry. Many commentators complain that the costs will far outweigh the benefits, and they believe that MiFID will be more fundamental and disruptive than Basel II and Sarbanes-Oxley combined. In any event, investment firms will no doubt seek out the benefits.

The impact of MiFID will be wide-ranging and will affect all investment firms, directly and indirectly. But some will be affected more than others, in particular broker-dealers and global investment banks on the sell-side that will have to understand and comply with the directive’s requirements for “best execution” and “systematic internalisation.”

These two requirements, explained in the next chapter, are universally regarded as being the most burdensome and costly measures that MiFID will impose on the industry. They will have serious implications for investment firms’ corporate strategies, business processes, technology architectures and compliance arrangements.

This white paper first explains the business impacts of MiFID, with a focus on sell-side firms. It then suggests a change framework for technology that firms can use to deal with these impacts.

2. MiFID: THE BUSINESS IMPACT FOR SELL-SIDE FIRMS

The directive’s implications for sell-side firms are significant, and largely negative. However, it is possible to make a virtue out of necessity, and MiFID is no exception. Firms that quickly adapt their businesses and supporting functions, most importantly IT, will gain a competitive advantage over those that act more slowly. The sooner firms understand all of the directive’s requirements – how it will affect their business model, how they will have to change their IT framework to cope, and how to budget for that change – the sooner they will gain that advantage.

The UK’s Financial Services Authority endorses this view, although it is more positive about the possible outcomes. In its Planning for MiFID guide, published in November 2005, it says of the directive: “Potentially, there will also be new business opportunities. More services will be passportable. And implementation across the European Union may bring about significant changes in market structure. The precise impact will vary from sector to sector, firm to firm. Firms that are well prepared will be positioned to make the most of these changes.”

BearingPoint would add that being well prepared implies a very close alignment between a firm’s business strategies and its IT strategies.

As stated earlier, the impact will be mainly felt by broker-dealers and global investment banks on the sell-side that will have to comply with the directive’s requirements for best execution and systematic internalisation.

BEST EXECUTION

Best execution is one of the directive's conduct of business requirements, set out in article 21 of MiFID. It requires an investment firm to take all reasonable steps to obtain the best possible result for its clients, which means taking into consideration price, cost, speed and the likelihood of execution and settlement of orders. It will necessitate having an "order execution" policy, disclosing "appropriate information" to clients about the policy and the execution venues it uses, obtaining client consent to the policy, monitoring the policy's effectiveness, and proving to the client that its orders have been executed according to the policy. These requirements are comparable to, but more extensive than, the US Regulation NMS (National Market System) being adopted during 2006.

The MiFID best execution requirement has several clear business and IT implications. Firms will need to have real-time connections with multiple regulated markets, MTFs and systematic internalisers to ensure that they have all the necessary data on prices, costs, speed and other factors.

Firms will also have to use more algorithmic and program trading engines to comply with best execution and to facilitate quicker post-trade reporting. Trading engines are already used to slice and dice orders using a set of predefined algorithms, driven by sell-side firms demanding greater efficiency and buy-side professionals wanting greater control over execution. Best execution will accelerate this process.

And firms will have to store price and other data they collect from all venues for five years.

Best execution has other, less clear, implications and raises a number of questions. For example:

- How should a best execution policy be drawn up, and what should be in it?
- Should it guarantee the lowest price in the entire market, or should it just compare prices from a set number of venues?
- How should it weigh the importance of price against other factors (for non-retail clients)?
- How will the attitude of regulators, a firm's place in the marketplace and a firm's strategy determine policy?
- Which data vendors should be used, especially for price data from MTFs and systematic internalisers, and how should they be integrated into a firm's systems?

No one yet has complete answers to all of these questions.

SYSTEMATIC INTERNALISATION

The concept of systematic internalisation is introduced by the directive in its markets and transparency requirements for trading in shares and is set out in article 27 of MiFID. These requirements define three main types of execution venue for shares:

- Regulated markets (RMs), such as stock exchanges.
- Multi-lateral trading facilities.
- Over-the-counter (OTC) trading by firms, some of which are defined as “systematic internalisers.” A systematic internaliser is a firm that, on an organised, frequent and systematic basis, deals on its own account by executing client orders outside an RM or MTF.

The directive places pre-trade and post-trade obligations on systematic internalisers. The pre-trade obligations are that they must provide firm bid/offer quotes in liquid shares, and those quotes, subject to certain waivers, must be binding for trades up to certain thresholds. The post-trade obligations are that they – and indeed, all investment firms – must meet the same transparency requirements as RMs and MTFs – which means they will have to publish specific information about completed share transactions in close to real time.

There are major implications for firms deciding to be systematic internalisers. Firms currently conducting OTC trading may decide no longer to do so, since being a systematic internaliser will carry with it too many costly and competitive disadvantages. Firms will have to balance the volume of orders expected against the cost of continuously publishing firm quotes during trading hours, and many will decide it is not worth the effort or expense. Conversely, those firms that do make this investment may well draw significant liquidity away from traditional stock exchanges. Only time will tell.

Some of the other effects are less clear. No one knows how many systematic internalisers there will be, where they will publish their quotes and trades, what their IT costs will be and whether it will be possible to develop a joint service utility for reporting, record-keeping and retrieval.

CAPTIVE MTFs: AN ALTERNATIVE TO SYSTEMATIC INTERNALISATION

As an alternative to becoming a systematic internaliser, a firm might consider setting up its own multilateral trading facility or joining a consortium to set one up. This would give firms many of the benefits of systematic internalisation, without all the costs and disadvantages. They would also be following the example of the Electronic Communications Networks (ECNs) set up in the United States to bypass traditional exchanges and over-the-counter market-makers.

THE TECHNICAL IMPLICATIONS OF MiFID
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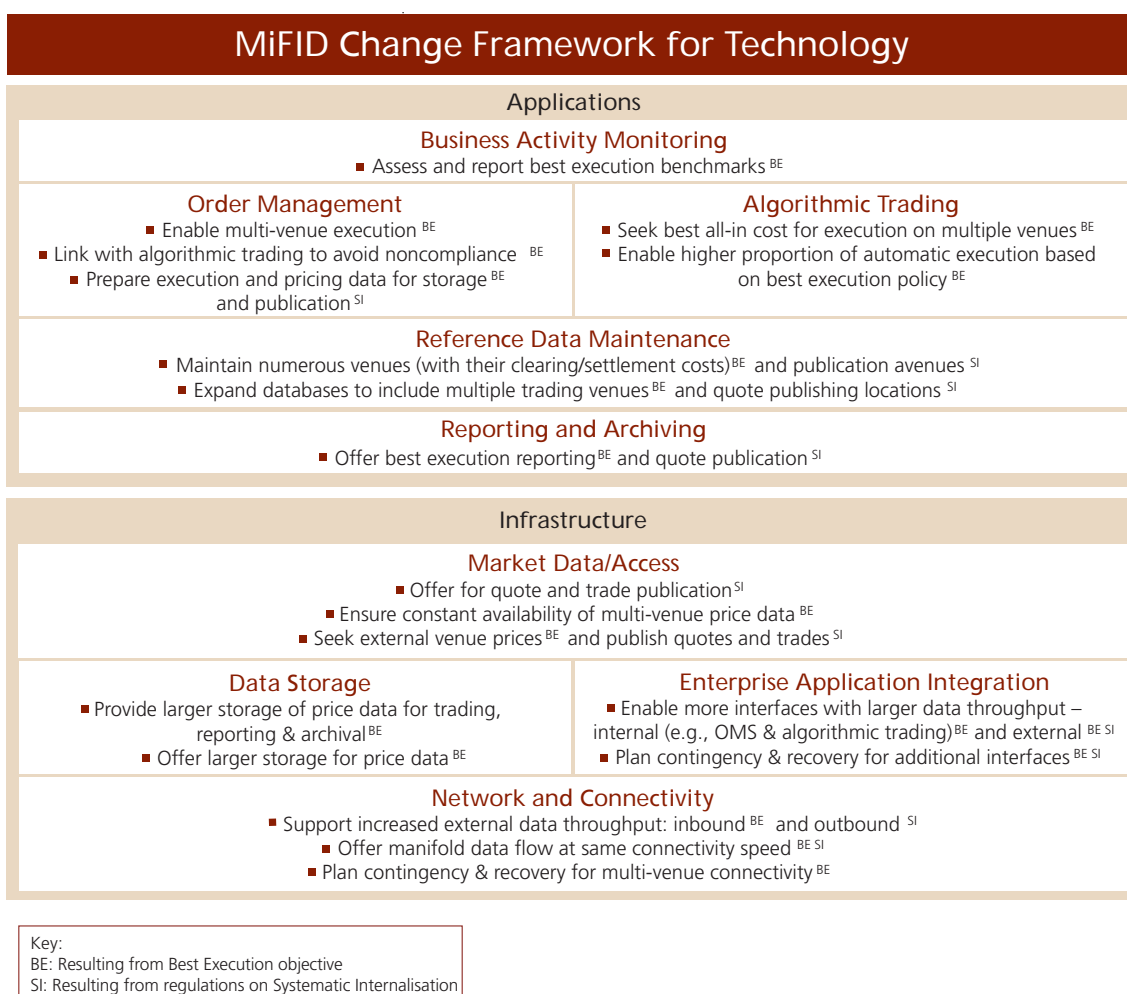
3. A CHANGE FRAMEWORK
FOR TECHNOLOGY

Having reviewed the business and IT implications of best execution and systematic internalisation, what sort of technology change programme should a firm develop as a result? The Financial Services Authority (FSA) has told investment firms that in planning for MiFID they need to understand all of the issues and organisational challenges that

the directive presents. The FSA lists a dozen organisational functions that will be affected, including IT and systems, but gives no advice.

Accordingly, BearingPoint has developed a change framework for technology that firms can use as a starting point. It can be adapted to suit individual needs and preferences, and focuses on two impact areas: applications and infrastructure (see Figure 1: MiFID IT Framework).

FIGURE 1: MiFID IT FRAMEWORK



APPLICATIONS IMPACTS

MiFID will have a big impact on applications within the IT landscape, largely on front office systems and the sources of information that feed into them.

1. Business activity monitoring (BAM). There will need to be an over-arching compliance solution that monitors the activities and transactions that happen on the trading floor and in the rest of the business. It will need to generate a dashboard for management to ensure the firm is keeping within the MiFID rules, as well as monitoring other critical compliance and business aspects. Ideally, it will also highlight any trends that are developing, especially trends that could result in a business activity becoming noncompliant. BAM solutions have gained a lot of attention in the last few years, and BearingPoint believes that effective, compliance-driven BAM will enable a firm to get much better visibility and control over its operations.

2. Order management systems (OMS). Firms will need to ensure that they have an OMS that incorporates flexible routing across multiple execution venues in the EU to achieve best execution. Such a system will have to link with market access as well as algorithmic and program trading to avoid the risk of non-compliance with the best execution rules. Firms that do not already have an OMS will need one; firms that already have one may find it

cannot cope with the additional venues and volumes of price updates and transactions and they may need to replace it.

3. Algorithmic and program trading systems.

MiFID will create further growth in the use of algorithmic and program trading systems. The algorithms should evolve within their usual six months to a year development cycle to reflect the best execution rules across the EU. The market is already moving to order execution systems that “slice and dice” orders in order to minimise the market impact, and this trend will continue to meet the best execution requirements.

For example, if a firm has an order for 10,000 shares at a specified price, the system might be able to source only 2,000 at the cheapest venue X but can find all 10,000 at the slightly more expensive venue Y. In deciding whether or not to split an order in this situation, the system will have to consider a variety of factors in real time, such as the costs of two transactions going through clearing and settlement instead of just one, and whether the price difference is big enough to justify splitting the order. Human traders can't be expected to make such calculations on large volumes of trades, across multiple venues, where speed is of the essence, and to comply with the best execution rules, so there will be an increasing trend towards more sophisticated automation.

4. Reference data management. All of the above systems will need to be underpinned by first-class reference data management. For example, clear identification of instruments and counterparties will be critical. Firms will not be able to afford any failures in downstream processing of trades, so data quality must be right the first time.

5. Reporting and archiving. MiFID is more prescriptive than current rules about the trading information that will have to be reported to the market and to regulators. For example, over-the-counter transactions will have to be reported, whereas today there are no such requirements.

All of this additional reporting will require extra linkages, good archiving and effective retrieval systems. Reported data and audit trails will have to be held for five years, a period over which core systems are likely to have changed. Firms will therefore have to maintain some legacy compatibility so they are still able to read and make sense of the records in five years' time. Alternatively, they may decide to migrate all the records to new systems when they install a replacement.

INFRASTRUCTURE IMPACTS

1. Market data and access. Trading systems will need to seek quotes from a larger number of venues than is currently the case, and these quotes will be frequently revised. These systems will therefore have to be updated to cope with this increased volume of data. There will need to be some kind of mechanism to consolidate those quotes across all of those venues – for example, when a trader looks at a particular instrument that is quoted, say, on three exchanges, two MTFs and five systematic internalisers, he or she will need a screen that displays where the best prices are, the depth of the order book and how much liquidity there is. It will also be important to highlight any non-standard clearing and settlement conditions that may impact on best execution. All this information may be presented either to a human trader working on the order or fed into an algorithmic trading program.

When a firm's IT infrastructure is used not just for source data but for derived data, every time there is a "tick" on the source data, the impact is compounded by multiple ticks being generated. Under MiFID – with quotes being sourced from multiple execution venues, and with the requirement for all the trades to be published – that will create a huge additional volume of data traffic, potentially putting a strain on the IT infrastructure.

2. Data storage. MiFID will not only increase the volume of data, but it will also require data to be stored and accessed for a period of up to five years. Firms will have to consider carefully how this will affect their current storage and retrieval strategy and the mechanisms they use. This issue is not restricted to the capacity of existing databases and systems – it also affects back-up and archiving mechanisms, and the use of technologies such as WORM.

3. Enterprise Application Integration (EAI).

Most financial services organisations have already gone a long way down the path of integrating their applications across the enterprise. MiFID will accelerate that process. EAI will need to cover more interfaces, both within the firm (such as between order management, algorithmic trading and market access systems), and outside (such as with data vendors, quotation publishing locations and execution venues), and these interfaces will need to be more resilient.

MiFID is explicit about the need for firms to have business continuity strategies, incorporating disaster recovery plans. For such strategies and plans to be effective, applications will need to be integrated enterprisewide.

MiFID will also trigger a move towards cross-asset solutions, and again EAI will play an important part. For example, the directive's transparency requirements initially apply only to shares, but they are likely to be extended to bonds and other financial instruments, soon after 2007, and this will put new demands on the technology framework.

4. Network and connectivity.

The physical network underpinning the IT architecture will come under greater use when MiFID is implemented. Firms will therefore need to ensure their network can cope and that connectivity across multiple interfaces and execution venues remains adequate. This will be helped if there is a rationalisation of standards. Therefore, MiFID is likely to encourage the adoption of agreed standards, particularly FAST, a new version of FIX adapted for streaming for market data and ISO 15022/20022 for transaction reporting.

4. CONCLUSION: MEETING THE MiFID CHALLENGE

There is no denying that MiFID presents the investment industry with serious challenges in terms of business impacts, IT changes, regulatory compliance and costs. But if these challenges are met head-on, they can provide a competitive advantage over firms that take a less robust approach. To win that advantage, firms need to act now. The first steps to take are to analyse the impact in detail, decide on the strategic response and implement the necessary policies, procedures and IT changes.

On the technology side, IT vendors often underplay the complexity of integration and the benefits of a holistic approach to technology change management. However, a holistic approach is the best approach. Technology departments in most investment firms are already implementing significant changes in program and algorithmic trading, as well as coming to grips with the requirements of the Basel II capital accord, the Sarbanes-Oxley Act and International Financial Reporting Standards. MiFID is another IT project, and a large and expensive one at that, but it is best dealt with by integrating it into an overall IT change programme.

This white paper has focused on just two impacts of MiFID – the effects of best execution and systematic internalisation on sell-side firms – and showed what sort of technology change framework is needed to deal with them. The other effects can be approached in the same way: they can be analysed, appropriate IT change frameworks created, and the frameworks integrated within an enterprisewide program of IT change. Only by taking a comprehensive approach can firms be sure that their business practices and IT architectures will remain compliant, and for a reasonable cost.

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