

# Agenda

Advancing economics in business

## Standardising communications messaging: improving trading and post-trading activity

**Electronic communications standards have historically brought about increased efficiency and competitiveness in sectors and countries that adopt them. Given the complexity of communications needed to operate markets effectively in the financial services industry, and the large number of players involved, what role does standardisation of electronic messaging play, and why are maximum benefits not always extracted?**

Communications standards have historically played a significant role in economic developments, often increasing the efficiency and competitiveness of sectors and countries that adopt them. Standardising railway gauges is an early example, and more recently the Internet Protocol (IP) and the Global System for Mobile Communications (GSM) have had significant effects on innovation among providers of Internet and mobile communications services respectively.

In the financial services industry, standardisation of messaging plays an especially important role due to the complexity of communications needed to operate these markets effectively and the large number of firms involved in delivering the service that end-investors need. The benefits associated with standardising communications among financial services firms are therefore likely to be greater than for many other economic sectors.

FIX Protocol Limited has recently published an analysis by Oxera of the impact of standardising messaging protocols. In this article we look at some of the economic issues surrounding this type of standardisation, and in particular at the second-order impacts on market dynamics that can arise from standardisation of interactions between participants in a production chain.

### Why standardisation?

The FIX Protocol, which is a messaging standard that enables machines to communicate messages relating to the business of transactions of securities involving investors, exchanges, central counterparties, custodians, regulators and depositories (to list just a few), grew out of the need in 1992 to address a bilateral problem of complex communication between

Salomon Brothers (brokers) and Fidelity Investments (investors) in relation to the trading of equities. By automating the interactions between these two parties (which had a client/supplier relationship) benefits accrue to both sides. These private benefits are, in theory, available in any bilateral relationship, and the private motivations of the players can be expected to lead to automation where the private benefits outweigh the private costs.

But neither Fidelity Investments nor Salomon Brothers would deal only with the other for its requirements relating to the trading of equities. Both had other client/supplier relationships relating to the same underlying services. Each bilateral relationship can benefit from automation and could (at least in theory) be subject to solving the problems in a unique way. However, there are significant costs of doing this as a separate exercise with a separate solution, and most, but maybe not all, of the issues that need to be addressed are common across similar types of relationships.

So having developed (and incurred the costs of doing so) a solution for the Salomon Brothers–Fidelity Investments relationship, both parties then had an interest in using this solution to deliver benefits in their other relationships—eg, Salomon Brothers to XYZ Investments and Fidelity Investments to PQR Brokers. However, Salomon Brothers did not necessarily have an interest in Fidelity Investments using this solution in its relationship with PQR Brokers, since it was likely to be in competition with PQR Brokers for customers, like Fidelity Investments. Similarly, Fidelity may not have been so keen for XYZ Investments to benefit from using this solution, as Fidelity and XYZ were also likely to be in competition with each other.

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This article is based on the Oxera report 'What are the Benefits of the FIX Protocol? Standardising Messaging Protocols in the Capital Markets', prepared for FIX Protocol Limited, December 2009. Available at [www.oxera.com](http://www.oxera.com).

As a result, there is an economic effect that solving the problem (in this case, developing the communication protocols and persuading the respective machines and staff in Fidelity Investments and Salomon Brothers to use them) is quite expensive, but using the solution in other relationships is much cheaper than solving the problem all over again on a bilateral basis (indeed, the additional costs of further use may be very low).

From an overall market perspective the widespread use of the same solution (the standardised communications protocol) makes significant economic sense— duplication of effort is avoided and overall costs are minimised. However, for the two players in the original bilateral relationship, this widespread adoption of the standardised solution is not all good news since benefits accrue to their competitors as well.

### Network effects

One (economic) answer is for the providers of the solution to be independent of the economic entities using the solution. An independent 'Oxera Protocols inc' would have no conflicts with the widespread adoption of a single solution. Yet there are other issues with this model.

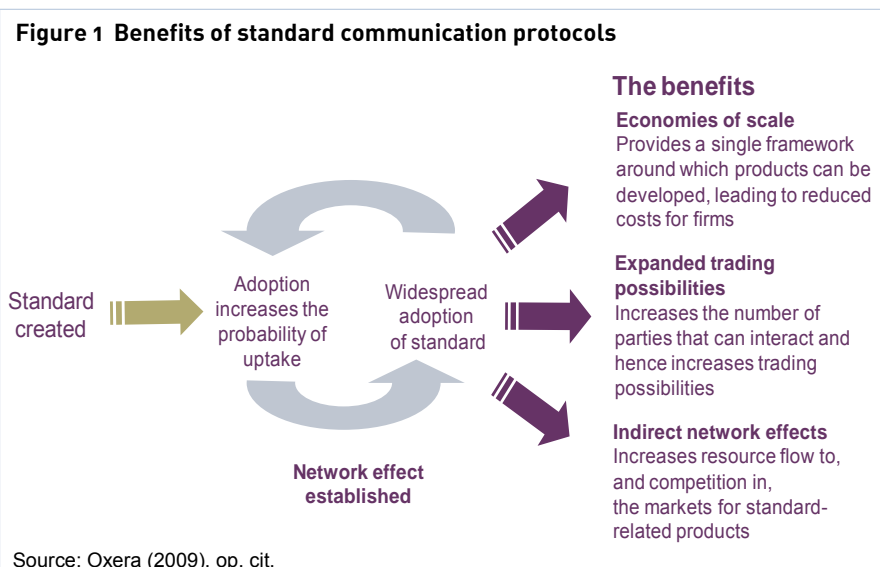
In order for the benefits to begin to materialise, 'Oxera Protocols Inc' has to persuade both ends of the transaction to adopt the same solution at the same time. So coordination can be an issue which prevents the process from starting. And if it does start, and is successful, Oxera Protocols Inc may gain significant economic power through network effects and economies of scale. Its marginal costs in rolling out the solution to another relationship are low, and if many firms have already adopted its protocol, the benefit to an individual firm adopting that protocol is very high. Hence alternatives that bypass Oxera Protocols Inc will tend to be expensive.

Network effects can also arise indirectly in the provision of the infrastructure needed to use communication protocols. The more a protocol is used, the larger the market for hardware or software that uses it, the greater the potential economies of scale in that production, and so on. Figure 1 shows this dynamic at work, and the type of benefits that can arise in the financial markets where the protocols are established.

### Capital markets

Compared with other industries, the financial services sector has an unusually high proportion of transactions between competing and complementary participants, potentially increasing the value of common standards because the number of entities that need the same, or similar, information in order to carry out the transactions is very large. In addition, the growing complexity of financial services within the economy is increasing the need to be able to monitor what is happening, and as the events of the last two years have shown, comprehensive monitoring at the system level appears to be increasingly necessary so that appropriate action can be taken to ensure that the system remains stable. All of this suggests that standardising information protocols can have a significant role to play in achieving this.

Typically, in order to complete a financial transaction, a significant number of institutions will need to be involved. They must communicate often complex messages with each other, and record, for their own internal purposes (management of the institution, billing, regulatory requirements, etc), both the fact that a communication took place and, in many cases, its content. In addition, in many cases both the content of the message and the requirement for recording are largely similar in different layers as they pass through the system. In other words, although the information may be aggregated/disaggregated as it passes through the systems, the core information is often very similar.



Competition in the supply of services at various points in the chain requires that essentially the same information can be sent to, or obtained from, different competing suppliers. For example, in the electronic world, for a broker to be able to use an alternative trading venue it must be able to communicate with it. If the alternative trading venue is using a protocol that the broker already uses, the electronic problem of obtaining connectivity is likely to be small. But if the alternative venue requires the use of a new set of

protocols, connecting will be much more difficult and expensive. Given other issues facing new trading venues with respect to, for example, liquidity, expensive connectivity will increase the barriers to entry.

Industry sources suggest that developing specific software to establish access to each of the existing exchanges' proprietary electronic trading environments can cost each firm as much as €50,000.<sup>1</sup> This level of costs might be one of the reasons for the relatively low number of brokerage firms that are members of traditional stock exchanges outside of their home country. However, in the last few years, many new multilateral trading facilities (MTFs) have used the existing international industry standard for financial messaging that brokerage firms already used for electronic trading—the FIX Protocol—making access by brokerage firms to their facilities as easy as possible. This has meant that brokerage firms could re-use their existing investment in trading software with minimal changes and at minimal cost. Arguably, the success of this approach may be judged by the considerable percentage of total order flow in blue-chip equities now passing to the new MTFs compared with the existing exchanges. At least one of the new, successful, MTFs has already stated publicly that it would not be in existence today without its use of the FIX Protocol.<sup>2</sup>

Less than two years after the Markets in Financial Instruments Directive (MiFID) was introduced, several MTFs are already up and running, including Chi-X, Plus Markets, Turquoise, BATS Europe and NASDAQ OMX Europe. Between them, they currently (March 2010) account for a significant proportion (around 30–40%) of turnover in stocks listed on the London Stock Exchange (LSE).<sup>3</sup>

The experiences of Chi-X, BATS, Turquoise and other MTFs therefore provide insights into how standardisation can benefit increased competition between execution venues. Chi-X, for example, using a standardised protocol, has been able to connect 100 trading participants in Europe in a timely fashion. According to Mark Howarth, CEO of Chi-X Europe:

As a result of low cost connectivity, low cost technology and low cost business operations, single participants report savings to their bottom line of over US\$10m per year. Across all participants this probably totals savings to the industry of about US\$500m.<sup>4</sup>

There are other cost savings that show up in the internal costs of those using standardised protocols. The difference in costs between the case where firms use a trading platform's proprietary protocols and standard protocols depends primarily on the number of platforms to which firms wish to connect. Interviews

conducted by Oxera with market participants have confirmed that, in the case of a standard messaging protocol, once the investment required to connect to one platform has been made, the initial one-off costs of adding further platforms using the same protocol are relatively small. Similar scale economies are observed in respect to the ongoing costs of maintaining links.

However, the dynamic here is both the reduction in costs to achieve connectivity to the new venues<sup>5</sup> and the *consequential* savings resulting from the enhanced competition and innovation. Over the same time period that MTFs have been capturing trading in LSE-listed equities, the cost per transaction on London-based exchanges has been falling (by around 50%).<sup>6</sup>

Provision of equipment and software that uses standardised protocols will also benefit from the fact that many potential customers are using the same underlying standards. The addressable market increases and, building on the economies of scale in this market, equipment costs also fall.

Finally, the complexity of the transaction processes in the capital markets, and the number of links there are, create the possibility of errors creeping into the system where there is translation of information from one format to another (even in electronic form), or where human intervention is needed to translate from one format to another—eg, rekeying data from a paper instruction. These errors can themselves create costs, and are often reflected in the fees charged for transactions that fail to execute correctly. Standardisation across many links—client to broker to exchange to central counterparty, etc—serves to reduce error rates.

As the interrelatedness of the capital markets becomes more apparent and, at least under some conditions, system-wide conditions become more important for economic stability and effective regulatory intervention, ease of monitoring across all capital markets becomes increasingly important. This is another area where high levels of interconnection are required and where standardising the electronic information flows to regulators would be likely to deliver benefits.

With all these benefits, standardisations of messaging would seem to be highly advantageous, but it does not always happen.

## Blockers in the path

As was demonstrated by the development of the FIX Protocol, the motivation to standardise can arise bilaterally across one link, and grow outwards. The maximum benefits tend to arise when many stakeholders have adopted the same standard, and that will not happen until some time after the early users start. In addition, not all potential users are linked

to all others. Indeed, particularly in this market, many connections are through intermediaries. Dynamically, therefore, in the transition to adopting communication protocols (or, indeed, any technical interfaces), different parts of the system can adopt different standards. The disadvantage of this outcome becomes apparent only later, when the two (or more) standards meet and try to interconnect.

Because the timing of the advantages and disadvantages differs, it is difficult for individual decision-makers to see what is in their long-term interests. In addition, minor differences in requirements can lead to apparently better short-term solutions which are not standardised, or are only partly standardised across the wider user base.

By the time it becomes clear that more widespread standardisation would deliver meaningful system-wide benefits, there may be significant user groups, each using different protocols. Converting them all to a single protocol, which may well maximise benefits in the long run, entails short-term costs for any group that has to change. No group(s) may be willing to make that change, so persistent stand-offs are possible.

In addition, even where it is clear that there are great benefits from widespread standardisation, if there is no obvious winner, firms may be unwilling to commit the initial resources they need to adopt any one standard for fear of picking the 'wrong' one, and having to convert to the 'right' one later. This fear can itself reduce any take-up, thus prolonging the period where there is no obvious winner, and putting off the time when the benefits to the system of standardisation can be realised.

## Possible solutions?

The potential benefits of standardisation, combined with the significant potential obstacles to achieving it, suggest that, from a public policy perspective, considerable effort should be put into getting to market structure outcomes where these benefits can be realised. However, there is no agreed best way of achieving this—in this market or, indeed, in other markets where standards are economically very important (eg, the mobile phone market).

From an economic perspective there are a number of complex trade-offs that need to be addressed and solved, including the following.

- Balancing the motivation to develop, and keep up to date, standards against the significant market power that can arise where standards are successful. Organisational form (eg, cooperative of users, non-profit making organisation, private company) can be an important factor in this dynamic, as can be the intervention of competition authorities.
- Balancing the immediate costs of transition to a different standard against the long-term benefits of more efficient markets.
- Balancing the interests of the market intermediaries (who are likely to bear the costs) against the interests of end-users (who are likely to reap the main benefits, especially from enhanced competition).
- Balancing the interests of the individual economic participant with the overall interests of all participants.

For the reasons set out above, leaving the solving of this problem to the individual participants in the market may not create an optimal outcome. The greater good may need to be achieved by more collective action. In addition, in this particular market, the regulatory authorities have their own interests in getting efficient and effective communications right across the markets—to enable them to monitor and more effectively regulate these markets to address other (unrelated) market failures. (This is in addition to their more general interest in making market systems more efficient for users.)

Intelligent requirements by regulators could, perhaps, be the catalyst that overcomes at least some of the blockers to the more widespread diffusion of the use of standardised communications protocols across not just regulatory functions, but also the market functions that would enable end-users to benefit from, for example, easier straight-through processing and more competitive markets, as well as easier information-handling in their own operations.

<sup>1</sup> Oxera (2009), 'What are the Benefits of the FIX Protocol? Standardising Messaging Protocols in the Capital Markets', prepared for FIX Protocol Limited, December, p. 23.

<sup>2</sup> See, for example, Waters (2008), 'Cover Story: Rise of the Challengers', March 1st, <http://www.incisivemedia.com/public/showPage.html?page=743868>:

The road to Chi-X began in late 2005 when, with MiFID on the horizon, Randall and his colleagues at Nomura-owned Instinet began to look at the feasibility of launching a pan-European MTF. 'The first thing we did was to try to learn the lessons of previous platforms that had failed and to understand why platforms in the US had been successful,' he says. The outcome was a trading venue that has tried to do four things. Firstly, where previous MTFs had failed because connectivity was so complex, Chi-X requires only that users be FIX protocol-enabled. Secondly, the platform offers free market data so that key facts about the market are widely available through Reuters, Bloomberg and elsewhere. Thirdly, as had been proven to work in the US market, Chi-X offers a rebate to those who post liquidity and only charges those who take liquidity away—known as the 'maker-taker' model.

<sup>3</sup> As reported by BATS Europe and Chi-X on their websites: [http://www.batstrading.co.uk/market\\_data/market\\_share/market/](http://www.batstrading.co.uk/market_data/market_share/market/), and <http://www.chi-x.com/market-data/market-report.asp>.

<sup>4</sup> As reported by FIX Protocol Limited.

<sup>5</sup> Possibly to such an extent that propriety connectivity would put into question the viability of the entry.

<sup>6</sup> Oxera (2009), 'Monitoring Prices, Costs and Volumes of Trading and Post-trading Services', report prepared for European Commission DG Internal Market and Services, July, p. 50. Available at [www.oxera.com](http://www.oxera.com).

**If you have any questions regarding the issues raised in this article, please contact the editor, Dr Gunnar Niels: tel +44 (0) 1865 253 000 or email [g\\_niels@oxera.com](mailto:g_niels@oxera.com)**

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