



**Adopting FIX:
an interview with Scott Atwell,
American Century**

Ross Hutcheon, UBS Investment Bank, speaks to Scott Atwell, American Century, about their early involvement with FIX



Despite not being one of the ‘founders’ of FIX, American Century is widely regarded as one of the early adopters in terms of setting the standard for electronic trading in the institutional trading arena. How and why did American Century and Scott Atwell become involved in FIX?

I think that it stemmed from the vision of Harold Bradley, who was the head of our trading desk at the time and is now a Chief Investment Officer in our US growth equities area. Our firm has always championed the use of electronic trading systems, which result in reduced implicit and explicit transaction costs for our shareholders. We were doing a lot of trading with systems such as Instinet, electronically using their terminals. However, we still faced the challenge that all of that order flow had to be manually entered by our traders into our proprietary order management system (OMS). Our trading desk saw FIX as an opportunity to automate the receipt and processing of execution reports. They also saw the use of FIX Indications of Interest (IOIs) as a great way to identify pools of liquidity in a vendor-neutral fashion. We saw the benefits as reduced risk of error, improved liquidity and more efficient use of trading professionals’ time.

In terms of some of the specifics, Jim Leman, whom many of us affectionately refer to as the ‘Godfather of FIX’, was at Salomon Brothers (before it became Salomon Smith Barney and then Citigroup) and asked Harold Bradley and American Century (we were Twentieth Century back then) to become involved with the FIX Committee (now known as the FIX Americas Regional Steering Committee). My understanding is that Harold convinced our internal management that we should be actively involved with FIX. After becoming involved and participating in meetings, our trading area still faced the dilemma that its mainframe-based OMS did not yet have FIX support. My understanding is that Harold convinced IT management that we needed to make this a priority in order to avoid ‘getting kicked off the FIX Committee because we didn’t have a FIX implementation.’ The IT team, which is responsible for our OMS, posted a job position, and I transferred from a different technical area within the firm in November of 1995 to take on the task of figuring out what FIX was and to be in production by April 1996.

I believe you implemented FIX back in 1995; what were the biggest challenges you faced then and are these different to the challenges today?

The challenges were numerous. You have to realize how ‘long ago’ in technology terms 1995 really was. Put another way, the prevailing PC operating systems at the time were Windows 3.1 and OS/2. Or in Internet years, Yahoo! was just coming into vogue and Google.com wasn’t around until 1998.

My first challenge was that I couldn’t access the FIX Protocol specification because it was available only on the Internet (at <http://world.std.com/fix>, I believe) and this was before our firm had any Internet capability. So I had to obtain an account with a local ISP and use a dial-up modem to access the Internet. It’s not like our firm was behind the times in terms of Internet access, as I think we were among the first mutual fund firms to allow shareholders to perform electronic transactions (August 1996).

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Another key challenge was the fact that there were very few firms who were actually using FIX in production. Some were doing a great job of telling the world what a great idea FIX was, but still had not yet enhanced their systems to support it. Scott Saber, who was at Morgan Stanley at the time, is a great example of someone who did a tremendous job marketing externally but fought hard and made progress to get the resources applied internally in the early days. Scott

was a great guy and tragically died at the World Trade Center on 9/11.

We had initially decided that we didn't want to write (in a programming language) our own FIX Engine, rather we planned on buying the enabling software from a vendor and we would focus our programming resources on the systems that interface between the FIX Engine and our OMS. Well, unfortunately none of the handful of FIX Engine vendors was actually in production at the end of 1995. We had another option that we were pursuing but it fell through for legal contract reasons. Ultimately we decided to abandon those options and I wrote our implementation. We were live supporting FIX IOIs and execution reports for US and foreign securities in April 1996.

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Establishing network connectivity with brokers was a key challenge back then as it involved waiting for and installing dedicated telecom circuits to each one. I wound up spending hours and hours on the phone with broker's network techs and personally re-configured our end of their Cisco, Bay, and Ascend routers. Once we had established firm-level connectivity to the Internet in August of 1996, we started using the FIX Protocol's recently developed strong encryption (PGP-DES-MD5) and established many of the future FIX connections via the Internet. This was much more timely and was also more cost efficient for the brokers. FIX networks like TNS didn't come along for a couple more years.

At what point did you know that the FIX Protocol was actually going to gain the traction it has today?

I've had an active leadership role with the FIX Protocol for a long time. I am continually surprised at the 'new entrants' looking at implementing FIX. It's still an evolving space with much of the focus today on non-equity asset classes, post-trade communication, etc. During 1997, our firm was achieving stats such as 'percent of fills received via FIX' at 96% for US equities and even 80% for non-US. Thus American Century as a firm was achieving a high penetration of FIX

usage so it was pretty obvious to me that 'FIX works'. It was just a question of how long it would take for others to catch on and catch up.

When did American Century begin to receive tangible benefits from its investment in the FIX Protocol? Did you have a competitive advantage over non-FIX-enabled competitors from the start?

I think it's fair to say that we received our first tangible benefits the first week we were live. We went live with Instinet and Goldman Sachs, both of which represented a good portion of our trading business. The benefit of automation was very apparent to our trading desk, as was the ability to detect any errors.

One of the other things that supporting FIX provides is the ability to pretty rapidly add, change, or remove support for trading relationships. For instance, in 1997 Instinet basically collapsed under the weight of the newly instituted order handling rules and we were able to switch over to both Bloomberg Tradebook and Archipelago and continue our execution. The head of our desk has stated that 'electronic back-up capability was nothing short of amazing at the time'.

I definitely think that the handful of buy-side firms supporting FIX early on were achieving a competitive advantage, especially in terms of the ability to see and aggregate liquidity using broker-provided IOIs. Our initial FIX implementation prioritized each IOI received with the highest priority being something contra side of an open order.

It was common practice for firms initiating FIX connectivity to begin with NOEs (one way FIX execution reports) and progress to bi-directional order routing. What prompted you to move from using NOEs to routing orders electronically? Did this require a fundamental change in business practices?

I think the answer is that it was easier for us and other firms to start with 'one way execution reports'. We didn't have to make as many enhancements to our OMS, rather we simply made our FIX execution report handler do the job of traders manually entering fills. The key challenge in this mode is to 'match' the execution report received with an open order on your system for that broker. If an execution report was ever

received that did not match an open order on our desk or exceeded available quantity, our system would automatically detect that, send an error message to all of the traders on our trading desk, send a FIX 'DK' (Don't Know Trade) message to the sales trader, and invoke automatic cancellation on ECN systems. Note that trading on electronic systems at the time was predominantly done via terminal software, which they provided so there wasn't a high demand for rapid, auto-execution type order flow via FIX.

The other key part of the answer is that buy-side firms got more initial 'bang for the buck' by implementing something which provided 'us' automation and efficiencies versus something that primary provided automation to sell-side firms.

Supporting outbound FIX order flow has certainly provided us benefits by ensuring the accuracy of our verbal orders. Supporting it wasn't really a fundamental change in business practice; rather it was really something that required a lot of infrastructure enhancements to our OMS. We had to port and re-write large portions of our OMS to a non-mainframe environment. We began implementing outbound FIX order flow just after Y2K. We sent 98% of all of our global equity orders out via FIX last year and we trade roughly US\$100 bn/year, so while we were a bit late in supporting FIX orders, I think we caught up.

Are there any markets that you trade today where your traders still have to pick up the phone to place the order?

I can't think of any equity market for which we can't send a broker a FIX order. There are still a few markets that certain brokers might not yet fully support. Our business practice still involves our traders calling our sales traders to agree upon how to handle the order, however, the order's details are all fully transmitted via FIX. In other words, the idea of using FIX was not to eliminate the need to speak with our sales traders; rather to make the process more efficient and error free. After implementing IOIs with our brokers, the phone doesn't ring off the hook with sales traders 'fishing' like they used to before FIX.

Do you think that investment management firms today can afford not to have electronic links to their points of execution?

I see supporting FIX as a prerequisite to being an effective investment manager.

FIX usage has very much been driven at your firm by the traders as well as technologists. What advice would you offer to traders at firms who believe that implementing electronic order routing will disintermediate their role or 'replace them with a machine'?

I've always told sales traders that we want to make dealing with them more efficient and that we still consider the sales trader as the 'only person at the brokerage firm paid to represent and protect our interests'. We are happier customers when we don't have to perform laborious tasks to deal with them. Our firm's traders see FIX as an enabling technology, not as a threat to their job. We see the trader's role as being one of a professional making good decisions on when to hit bids or lift offers and managing our relationships with The Street. Ultimately they're accountable for managing our order flow and if they can use technology to make the trading process both more efficient and reduce the risk of error, then they're all for it.

How has chairing the FIX Technical Committee helped American Century?

I've been co-chair of the FIX Global Technical Committee since 1997, taking over for Bob Lamoureux from Fidelity Management and Research who was one of the Protocol's founders. Participating in industry initiatives is a balancing act, and sometimes things like sleep are forsaken. I recall working 22 hours the final day of the FIX 4.2 release and still considered having 'made the promised date' since I hadn't gone to sleep yet for the prior day.

My active participation has resulted in an increased knowledge and understanding of the industry which I've been able to apply to internal initiatives. Participating in FIX initiatives has also resulted in a lot of great contacts with my counterparts at competitors, sell-side firms, etc. We've leveraged those relationships to share experience with products and processes we've considered.

American Century has had other representatives involved with the FIX organization. Mike Cormack, who was the manager of our domestic trading desk and currently President of Archipelago, was also the US FIX Steering Committee's buy-side co-chair back in the early days. The FIX Protocol is very important and valuable to our firm since we use it to conduct all of our trading business, thus we're committed to supporting and leading the noble efforts of FPL.

What recent challenges has your firm had to respond to relating to electronic trading?

We enhanced our OMS to provide our traders with a screen of custom order settings to support expressing algorithmic FIX orders. We extended our existing functionality to support features that are unique to algorithmic order flow and currently use this in production for the US, European, and Asian markets. The ability to extend FIX to support new or unique requirements (bi-laterally agreed upon) has been one of the keys to the Protocol's success.

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The usage and growth rates of FIX prove that efforts to enhance and promote the Protocol are working, but are there improvements we can make as a user community to better plan and co-ordinate the adoption of new features?

It's tough because we have some people who want a new feature immediately and others who are still using versions of the Protocol that were released several years ago. I think the best thing we can do is provide 'forums' for the communities of users who are interested in a particular feature or product set. I think that FPL's product-level committees, such as Global Fixed Income and Global Derivatives, have done a great job of 'channeling' requirements in the same way that FPL's regional committees did in the US, then Europe, then Japan, and then in Asia/Pac. FPL's Global Education and Marketing Committee has been doing a great job getting the word out, organizing conferences and educational material, and producing top-quality publications such as *FIXGlobal*. The FIX Global Technical Committee has been the backbone of FIX-related efforts since the inception of the Protocol ten years ago. The FIX website has served the industry very well as the central resource point for all things FIX; however, it's become a bit dated and will be upgraded later this year through the collaboration of the Global Technical Committee and Global Education and Marketing Committee.

The fact that the people who are proposing new features are also the ones who will be both implementing and using

them has been one of the fundamental keys to the success of FIX. We don't suffer from a dichotomy between academic or theoretical efforts and those of real world practitioners. In other words, we have to 'eat our own dog food'.

Where does FIX have the greatest impact on your overall strategy to achieve operational efficiency?

It's the underpinning [factor] for our external communication and automation in the trading life cycle. If the order flow is both timely and accurate within our front-office systems, then things should go smoothly for our middle- and back-office systems. We also communicate electronically with our custodian banks using non-FIX communication. For me, the key is that our Portfolio Manager is the person who 'enters' a ticker symbol and specifies if it's a buy or a sell (at both our firm and the sell-side or custodian). The rest of the systems simply manage that order and transition/enhance its details through the trading life cycle.

Are there still gaps in the Protocol or adoption rates?

Yes. I think everyone implements the Protocol at a different rate. The bottom line is that we and others use FIX because it helps us run our business, not because it's in 'tag=value' syntax or in XML or sent via TCP/IP or any other 'techie reason'. We and others are motivated to adopt FIX to support those aspects of our business for which we seek its benefits. Fortunately for FIX, it provides a wide range of benefits. Unfortunately, firms have limited resources and have to prioritize their efforts.

How can your sell-side brokers better partner with American Century to help you achieve your strategic goals?

It is already a requirement for our brokers to support FIX if they want to do business with us. Our standpoint is that it costs us more, in terms of risk and efficiency, to do business with a firm which doesn't support FIX. From that perspective, the differentiating value a broker brings to the table is not "connectivity" since we already have that with everyone; rather, brokers must differentiate in terms of execution, research, and syndicate services. I've also seen several sellside firms successfully begin to provide some of their internal capabilities ("white label" service) such as algorithmic trading directly to buy-side firms. **FIX**