Brickendon Journal 04

BRICKENDON

2015....

With 2015 upon us, Brickendon Consulting's Executive Director James Baker reflects on the successes of 2014 and shares the company's plans for the coming year.

"Our aim is to continue to maintain our 'client aligned, business focussed' ethos and deliver true value to all of our clients"

"During 2014, Brickendon performed solidly in winning new projects while also diversifying its offerings to existing and new clients. We continued to build on our business consulting strategy, and steered this division's growth to more than 50 percent of our sales revenues. Our investment in Knowledge Leadership (KL) strengthened the brand while inspiring further collaboration and solutions across our consultant base. On our fourth birthday in April 2014, Brickendon doubled annual turnover and grew headcount by 15 per cent when compared to the previous year's figures.

Over the course of the year we welcomed 40 new faces to Brickendon and secured seven new major financial clients in London.

The year also saw us add a new executive director, Dean Gammage. Prior to joining us, Dean was at Barclays as Global Head of Tax Technology, driving a tax-transformation programme to move the bank from manual process to real-time automated inspection of client payments to ensure compliance with IRS and other tax regulation.

Nathan Snyder was promoted to executive director for his outstanding contributions both on-site delivering EMIR Delegated Reporting at a major global investment bank, but also for his Knowledge Leadership (KL) strategy and delivering it with our dedicated KL researchers and consultants. Their tenacity and commitment is fantastic and we are delighted that they are on board, joining Chris Burke and myself along with the rest of Brickendon, for another successful year in 2015.

During 2014, Brickendon also:

- Won seven new clients and 23 new projects, taking our tally of in-flight projects today to 34.
- Created a bespoke eFX corporate sales platform for the eFX desk of a major European bank over 18 months, incorporating Brickendon's methodologies and specialist approaches.
- Selected to head up multiple major change initiatives with major global investment banks and hedge funds, further supporting our brand recognition for quality of delivery.
- Successfully delivered an EMIR Delegated Transaction Reporting Service with Brickendon resources working in conjunction with the client's own people under strict regulatory deadlines.
- Achieved its target of retaining more than 80 percent of its consultants, with outstanding utilisation rates at more than 90 percent of 2014.
- Reached the final for Best Testing Project 2014 – Finance Sector and Best Testing Team of the Year at the inaugural European Software Test Awards (TESTA).

We are looking forward to 2015, during which we will increase investment within our KL function, with additional funding for new training programmes to further improve our service offerings. There is planned expansion within our technology consulting services to introduce a near-shore capability in Q1 of 2015, along with increased budgets for Management and Business Strategy consulting that will be aligned to KL practices. Our aim is to continue to maintain our 'client aligned, business focussed' ethos and deliver true value to all of our clients via our management and technology consulting offerings.

Looking ahead, we aim to engage with you, our valued clients, on a more regular basis through frequent market updates, white papers, keynote speakers and shared training opportunities.

I would like to thank all of our clients for your repeat business and continuing support. We strive to improve our services in every way possible to ensure that you get great value for money and keep coming back to us.

Thank you.

James Baker

Contents

A Boost for Global Economic Growth – the Impact of Lower Oil Prices

Oil prices have plummeted across the world with both the American WTI and Britain's Brent Crude falling sharply in Q4 2014. We look to understand why oil prices are falling and what will be the impact to the world economy if crude oil prices sustain a substantially lower average price in 2015 than what they have done in the prior 4 or 5 years.

Supply and demand factors strongly influence oil markets, just like any other. The sharp tumble in the price of crude in Q4 2014 reflects an increase in the supply of oil, especially as a result of the North American shale boom, and an easing of demand. Changes in demand reflect more efficient energy use, sluggish global economic growth and a switch to alternative energy sources.

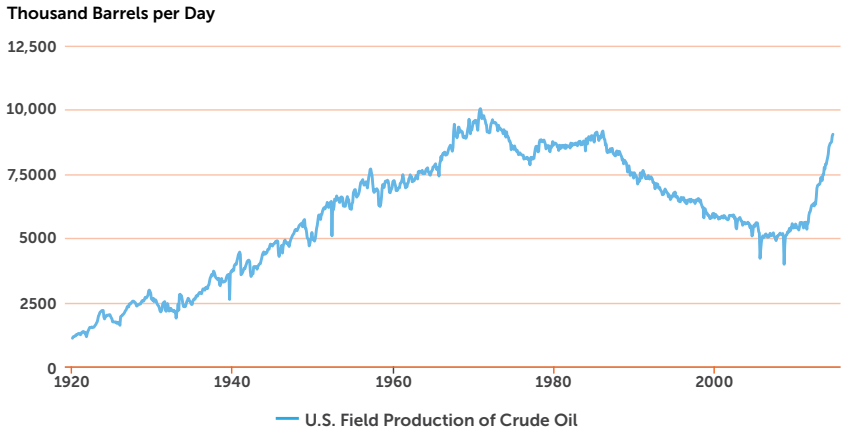
Given that both supply and demand factors are moving in directions that ease prices, this suggests that in the short term we should expect continued downward price pressures. Once however, substantial growth returns to the global economy, prices can be expected to rise.

Supply-side changes to the market

In recent years there have been a number of significant changes to supply-side factors. The most significant has been the shale oil boom, most prominent in the US, but gathering momentum elsewhere. It has increased US production to more than 8.5 million barrels per day (bpd). To put this into perspective the last time that the US produced this much oil on a monthly basis was 1986.

The sharp increase in production is a relatively new phenomenon. In 2011, the US averaged production of around 5.5 million bpd and now with production approaching 9 million bpd it is on track to become the biggest oil producing nation, expected to out produce even Saudi Arabia by the end of 2016. This additional increase of more than 3 million bpd has pushed the US towards energy independence with imports of oil now below locally produced oil. This has prompted predictions that with US oil production growing at between ½ a million and 1 million barrels per day that within just ten, or at the most twenty years, the US will no longer need to import oil or gas.

U.S. Field Production of Crude Oil



Source: U.S. Energy Information Administration

The second major factor on the supply side is renewed production from Iraq and Libya, which has been restored as regional conflict has eased. The final major supply side factor is the reluctance of Organization of the Petroleum Exporting Countries (OPEC) and other major producers to reduce the quantity of oil that they are supplying. In November 2014, OPEC had the opportunity to reduce its collective output (which accounts for 40 per cent of global oil), but chose to maintain its production quantities. Whether OPEC's decision was political with countries like Saudi Arabia attempting to gain market share at the expense of their higher cost competitors, or the real needs of countries like Nigeria, Venezuela and non OPEC Russia, to maintain production quantities to ensure their government spending programmes can be met, volumes didn't fall.

Changes in the Demand for Oil

The decline in oil prices largely reflects supply-side issues, but at the same time, demand has remained stagnant. Across the global economy, and particularly in Europe and Japan, demand for oil has slowed. The recent return to economic growth that the US and UK have enjoyed has not been reflected elsewhere. With limited economic growth, alternative energy sources coming online, and more efficient vehicles being manufactured, the global demand for oil hasn't increased sufficiently to absorb the supply increase. In light of this, OPEC's decision to continue to pump amid falling prices has meant that, for the time being, oil will be faced with further downward price pressures.

The Winners and Losers

The immediate impact of reduced prices should be viewed along the lines of winners and losers rather than producers and consumers because the two groups aren't perfectly correlated. In fact, some producers are winners and others are losers at lower price points.

The big winner from the lower oil price is the general oil consumer. Large oil-consuming nations like China, and of course the US, are big winners with China using the lower price to increase its national stock of oil reserves, and the US seeing lower prices boosting consumer spending and economic growth. The US however, poses a complex situation. On the one hand, it is enjoying the obvious positives of lower-priced oil, but on the other hand, the shale boom has created investment and jobs, more than 100,000 in fact. As oil prices fall future investment and jobs could be put at risk as we saw in December 2014 as oil majors delayed Capex spending.

"Once however, substantial growth returns to the global economy, prices can be expected to rise."

There is speculation that there will be a tipping point where shale oil drillers will start to default once oil sustains a low price, but at what price $70 a barrel? $50? $30? Predictions about the lower price impact in the US vary, but it is estimated that if the average oil price sustains a price of $60 per barrel, this could have a significant impact on Capex investment and the growth of shale oil production from an additional 1m daily barrel per year to around half that.

Another big winner is the global airline industry. Fuel is such a large component of its cost base that lower prices provide a huge boost to the industry and airline stocks in general.

Fuel subsidisers are also enjoying the benefits of lower oil prices. Countries such as India, Indonesia and Egypt who subsidise fuel for their citizens will see a positive budgetary impact, and they could use the opportunity to remove, amend or reduce these subsidies, which have eaten up an increasingly large part of government spending in recent years.

There are some producers who can be regarded as falling into the winning camp. Saudi Arabia has a low cost of production and can continue to pump at lower prices forcing out producers who have a higher cost base. The country needs a relatively high price to balance its budget, but with ¾ of a trillion USD in currency reserves is seen to have pockets deep enough to not blink first. Other

producers who are winners are parts of the US shale industry who have used more efficient technology, low borrowings and extraction costs at around $40 a barrel so can be flexible and rapidly ramp production up or down.

Finally the global economy is a winner. It is difficult to quantify the exact impact of oil prices on the global economy, but it is possible to say that with lower oil costs consumers have additional funds to spend on items other than oil. This leaves more money in the pockets of the consumers, boosting the overall global economy.

In the losers' camp we see the main producers, who are receiving a lower price for their product. This is most significant for firms or sovereigns with a high cost of production, or sovereigns that are heavily dependent on oil revenues to balance their budgets even if production costs are not excessive. The countries most impacted will be Russia, Venezuela and Nigeria who need prices of more than $100 a barrel (and in Venezuela's case considerably more) to keep government finances in order. Certain US shale producers who are highly indebted or need a higher price to break even will feel the pain, and we expect to see consolidation in this part of the industry. Losers also include firms who are dependent on the industry's growth, including drillers and oil equipment suppliers, who will see projects put on hold or cancelled if project breakeven points are not met.

Also on the losing side of the equation are those working in the market of renewable oil substitutes; their cost base is typically higher than the cost of oil production and these programmes will be impacted because they become less economical when the price of oil is lower.

Longer-term Outlook

There are so many variables with both economics and politics driving players, making 2015 an exciting time to watch the global oil markets. Among the issues to watch are:

- The potential for social and political unrest as well as changes in government. Countries that have become dependent on higher oil prices to balance their budgets will need a rapid return to higher prices or face shortcomings in their spending programmes.
- The impact on the US shale oil market. Sustained low prices could inhibit future growth and job creation. There is a balancing act between the benefit to the US economy of lower oil prices and the investment and jobs created when the oil price is high enough to generate investment.
- The impact on related industries. Higher oil prices in recent years have opened up whole new industries and enabled new sources and methods of oil extraction to come online as economically viable. Lower oil prices places a major question mark over their immediate future.

Hedge Fund Startups – The Realistic Viewpoint

Regulations are taking over the world of investment banking and restricting various trading strategies. In response, an increasing number of traders – many with strong track records – are starting up their own hedge funds as an exit route. They believe that there is a market out there for them, but these aspiring fund managers will realise that they face multiple challenges beyond making money. These include dealing with fund raising, IT, marketing, human resources and navigating the increasingly complex regulatory environment on their own.

"Supporting new investment managers is also good for the industry."

Challenge One: Raising Funds

The key challenge is the difficulty of raising money for smaller funds. In the US, the top 500 hedge funds control more than 90 per cent of the industry's assets, according to alternative investing research firm Prequin. In sharp contrast, smaller funds are often individuals who come up with a sum of family money (typically 5 to 10 million USD) and have an unrealistic expectation of the

opportunities available[1]. Contrary to the common belief that getting venture capitalists (VCs) on board is the first step, they quickly realise that VCs often hold back startup funding to entrepreneurial ventures. Instead, they are only keen to get involved once the fund has kicked off and established itself. This leaves only "angel investors" (affluent individuals providing direct capital) who would consider new startup, but this group of individuals remain extremely selective. To attract investment the sales pitch and the timing of entry into the selected market need to be extremely convincing, with investors needing to trust both the prospect and their ability to survive the challenging market conditions.

Challenge Two: Marketing

Marketing of the fund is key to its success, with location, contacts and relevance in the target country essential - Europe and Japan are especially tough markets to enter. There will be many challenges for an emerging manager in those regions and this person will have to get out there to do the marketing and raise awareness of the fund. They will need a track record that is convincing, as well as a compelling story to get the fund off the ground. Track record is a concept of proven performance evidenced with back testing and simulation. A track record will be heavily scrutinised and four-to-five years of audited records are no longer sufficient. The manager will need a one-page track record backed by a brokerage company as well as tax records. Many venture capitalists will only consider a fund structure backed by a third party, and audited by the Big Four. In addition, triangulating references are also often required. Lawyers, brokers, and headhunters all make good referees. Those running the startup will need networks like these if they are to secure backing.

Challenge Three: Regulations

Tightening regulations pose a challenge for any start-up, making the process costlier, harder and slower. The key is to either get a regulatory expert on board or to engage a service provider/consultant to manage the regulatory requirements. Spending time sifting through regulatory complexity rather than being out marketing the fund is a challenge the manager must address. It may be tempting to suggest starting up in places with reduced regulation like The Cayman Islands or Luxembourg. But this may not suit investors, be expensive to set up once legal fees are taken into consideration and limit trading options once up and running.

Challenge Four: Fees and Costs

In terms of Fees, the norm remains at 2-20 (2% annual fee plus 20% performance fee on profits) - with US institutional investors are reasonably stringent on how to measure performance. Other investors are also usually happy with 2-20 because they understand that managers need working capital and reward for performance.

The second-most popular option in the market is 1.5-50. Emerging managers realise however that annual management fees are never going to make them rich. They need to know their cost base and fit the management fee accordingly. The manager needs to understand that the bigger the fee, the bigger the funds' cost base. They will need to not only justify the management fee, but ensure a pipeline of future investment. The investor profile should also be considered to determine any conflict of interest and their flexibility. Gross Revenue Share (GRS) and Bottom Line Share models are often considered, but a GRS approach is more laissez faire.

Challenge Five: Operational Issues

One of the biggest mistakes that new entrants make is the lack of consideration they give to the operational element of the process. The ultimate measure of success is the fund performance (making up at least 80 per cent), but the in-house capability needs to be institutionalised to develop this. It is often underestimated just how expensive this is and how long it will take to start a fund, as well as get the back-office up and running. With a lack of understanding around issues like the fund's commerciality and how to grow the fund organically, many startups find themselves struggling to sustain the business.

With the fragmentation of prime services, entry barriers into tier 1 banks are increasing. With the needs of emerging managers higher than the established fund managers, banks will make choices based not only on profitability of trade but also the cost of servicing the fund. It is critical for emerging managers to have the support people that they need, while banks and service providers need to weigh up the cost of non-profitable clients with the potential growth opportunities that exist with funds that succeed. Smaller funds that succeed provide diversification in the market, and often run non-correlated strategies that don't usually have an impact on market prices. Having a few big funds that dominate the market, as with any industry, is not healthy in the long run.

Finally there is the people element. Really getting to know not only your clients, but also service providers and support staff is critically important. Without succeeding with your people, the challenge for an emerging manager will be far greater than it already is.

Follow the MAP – Mastery, Autonomy and Purpose

BRICKENDON

Large scale change programmes require leadership and the ability to motivate others. Brickendon's change leaders motivate their teams by ensuring they have Mastery of the subject matter, Autonomy to deliver and understand the greater Purpose of the change.

To find out more visit www.brickendon.com or scan this code to contact us now

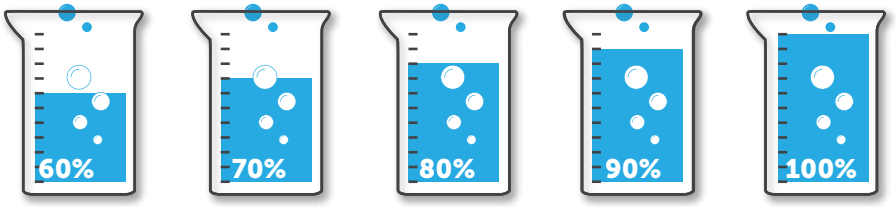
Read our case studies at www.brickendon.com

Basel III – Liquidity Stress Tests

Basel III (or the Third Basel Accord) is a global, voluntary regulatory standard on bank capital adequacy, stress testing and market liquidity risk.

The Basel Accords were developed in response to the deficiencies in financial regulation that the financial crisis revealed in 2007-08. Basel III is designed to strengthen bank capital requirements by increasing bank liquidity and decreasing bank leverage.

LCR Targets



The Liquidity Cash Ratio requirements of the Third Basel Accord came into effect on 1 January 2015. Although the Basel standards are voluntary, national regulators have adopted them widely and financial institutions are responding.

Basel II was focussed on capital requirements, assuming that lending has risks and that capital needs to be set aside. Basel III has increased these capital requirements, but in addition has stated detailed requirements on leverage and liquidity. Under Basel III, banks will need to meet specific liquidity targets as set out in the Liquidity Coverage Ratio (LCR) and Net Stable Funding Ratio (NSFR).

NSFR measures the amount of stable funding held against the stable funding requirement. In this instance, stable funding is defined as the proportion of assets that are funded by long-term, stable funding such as inter-bank lending and equity. The purpose of this is to promote resilience over a longer-term horizon.

Specific NSFR targets have not yet been published, and will not become a minimum standard until 1 January 2018, but in the interim, the following progressive LCR targets have been published.

LCR is a measure of whether a bank has enough High Quality Liquid Assets (HQLA) to survive a 30-day stress test. An asset qualifies for HQLA where it can be traded in a market with enough participants that the asset can be sold without materially affecting the market rate. The purpose is to reduce the risk of liquidity shortages seen during the financial crisis.

The Basel III stress test is designed to drive banks towards adopting a more cautious approach by imitating a systemic crisis in the banking sector. During the 30-day period a number of assumptions are made around the withdrawal of deposits and the paying back of loans. These include:

- Withdrawal of deposits – defined by the type of investor.
- Upon repayment of a loan, 50 per cent of the loan value will not be repaid.
- Contractual outflows resulting from a downgrade in the credit rating of the institution that is being tested.
- Increased market volatility causing increased collateral requirements.
- Drawdown of unused credit facilities that the institution has issued to its clients.

One of the interesting factors in these tests is the considerable difference in percentage withdrawal of deposits dependent on investor type. For example, a corporate with a simple relationship to the bank is assumed to withdraw 75 per cent of its deposits, whereas a corporate with an operational relationship is assumed to withdraw only 25 per cent. This is a clear example of Basel III creating increased connectivity within the sector, to encourage banks to offer a variety of services to their clients to increase 'stickiness'.

Under these conditions LCR is defined as:

$$LCR = \frac{\textit{Stock of HQLA}}{\textit{Total net cash outflows over the next 30 calendar days}}$$

The calculation and monitoring of cash and other liquid assets is a significant challenge for most banks and has generated a lot of activity in preparation for the deadlines. Even without the introduction of NSFR requirements the journey from 60 to 100 per cent LCR over a period of four years will have a significant impact on Return On Equity (ROE) and overall performance.

The Basel III stress test is designed to drive banks towards adopting a more cautious approach by imitating a systemic crisis in the banking sector.

Hedge Fund Financing: Still in 'Prime' Position?

Equity financing (in a Capital markets banking sense rather than a company raising funds by selling its equity interest) refers simply to the lending of money or securities to financial institutions (normally hedge funds) in exchange for appropriate collateral (normally equity products). Typically a capital markets equity finance division will include stock borrow/lending, equity swaps, prime brokerage margin financing and structured equity financing. Often these four core businesses are referred to in marketing terms to institutional clients as 'Prime Services'. Custody, clearing, access to capital, and research are also normally part of the offering.

These collective financing businesses have one key requirement to be profitable: access to money. Either from the bank's own treasury balance sheet or a third party via re-financing.

Prime Brokerage (PB) used to be a simple business for banks. Borrow money from a seemingly never-ending internal balance sheet at relatively low cost, add a juicy spread and on-lend to hedge fund clients in exchange for the appropriate amount of collateral to keep the bank safe should the hedge fund become unable to pay back the loans. As long as the collateral was correctly priced and its risk and liquidity assessed properly on a daily basis, they couldn't lose. What could be easier?

In awe of the huge revenues and profits generated by the original bulge bracket US banks, most notably Goldman Sachs and Morgan Stanley during the 1990s, over the last 15 years in Europe and Asia nearly all Tier 1 Banks have entered the marketplace with their own offerings. Hundreds of millions of dollars have been spent on creating and maintaining infrastructure, hiring huge teams and creating global service models to service the enormous amount of hedge funds who themselves were starting up at an extraordinary rate. Global Prime Services staff numbers at the Tier 1 Banks during the mid 2000s involved anywhere from 200 to 400 people at each bank, with thousands working in the business across the industry.

Or at least that was the picture before the 2007-08 financial crisis. The sudden increase in borrowing costs, subsequent collapse of Bear Stearns and more notably Lehman Brothers changed the PB landscape forever. Until that point there was very little consideration by hedge funds of the counterparty risk of their PB. After all, how could these huge global investment banks making billions possibly fail? Well fail they did, and in the case of Lehman a huge issue

related to the holding of client collateral by PBs was uncovered. Gone were the days of the relatively simple business outline above. Instead, the cost of the PB borrowing from its parent bank's balance sheet multiplied 10 or 15 fold, and those costs could only partially be passed onto the hedge fund clients, who themselves were enormously squeezed for capital. To stay profitable the PBs were forced to do something that had only been done previously to cream extra revenue, but was suddenly a necessity for the business to survive: 'rehypothecation' of client assets.

Rehypothecation of client assets is the name given to the practice of the PB on-lending the client collateral (for the PB margin loans normally) to a third party for refinancing. This third party would be a bank with greater access to balance sheet and as such would lend the money back to the PB for on-lending to their clients. As these sources were much cheaper than internal treasury functions at the PBs this was the only way to survive. For almost all full-service PBs today, this is the only way to survive.

Back in 2008, rehypothecation was not as commonplace as it is today. To carry out the activity properly and in a controlled manner, a complex infrastructure is required at the PB where the client collateral is constantly assessed for suitability and liquidity, as is trading activity on those positions, and the legal limits imposed on the PB for rehypothecation. Normally, and increasingly, clients would insist on PBs only having access to stock for rehypothecation as percentage levels of their borrowing (sometimes known as indebtedness). This way assets are only rehypothecated by the PB where there is a need to finance borrowing. It sounds like a solution to the PB's problem of not being able to use the bank's balance sheet, but collateral suitability, legal limits and active trading normally mean that it's not the perfect solution for a completely 'self-financing' business, albeit it does keep them in business.

But we digress. When Lehman Brothers failed so spectacularly in 2008, the practice of rehypothecation was brought to the attention of hedge funds and their investors, and suddenly thrown centre stage during the bankruptcy proceedings. Until that point the focus had been on the banks having enough collateral for their lending activity. In this case however, it was the hedge funds wanting their own collateral assets back.

At the time, a typical PB set-up was for the hedge fund client to be offered Custody Services for free, and as such the hedge fund would place all their assets for a particular fund (if they had one PB) in that custody account, even if they were not needed for financing. The PB legally owns the custody account while the hedge fund still beneficially owns the securities. As such, the PB has the right to rehypothecate the assets – depending on the legal agreement – normally in excess of indebtedness, and unlike the US there are no regulatory restrictions. In 2008, the percentage levels were not a huge consideration for the hedge funds, and as such Lehman and other PBs were able to rehypothecate many of the assets given to them as long custody positions by the hedge funds. Many hedge funds had contractually agreed with their PB that an unlimited amount of their long fund assets could be rehypothecated, normally in exchange for lower overall funding spreads.

In short, when the hedge funds came looking for their long fund assets in the Lehman PB custody accounts following its bankruptcy, they just weren't there. They had been rehypothecated and were sitting with multiple third parties. This wasn't particularly good news for the hedge funds. The fact that under British law there was no legal asset protection (unlike 15c3 in the US) resulted in a further issue. Ultimately most of the assets were returned to the hedge funds. This however took years rather than days, and many of the hedge funds did not survive during this period.

This single event changed the way that hedge funds and other institutions looked at PBs. In a bid to reduce the counterparty risk of the PB, there was subsequently a trend towards hedge funds having multiple PBs to diversify risk, looking to US PBs to offer international PB services from their US legal entities, restricting rehypothecation (with close monitoring/reporting of this activity), and client money lock-up. This in turn has increased the costs for PBs. This, in conjunction with the necessity to refinance all positions via rehypothecation, has now made it increasingly difficult for PBs to return the huge profits that were once so prevalent.

So latterly the equity finance business hasn't looked in such a 'prime' position because all of the constituent businesses require funding and balance sheet access, and inventory of the PB business to be profitable. PBs in recent years have focussed on improving efficiency, significantly reducing costs, finding other funding sources and cutting ties with unprofitable clients with unfundable assets. Unfortunately for broker/dealer-style PBs there doesn't seem to be any sign of cheaper funding in the near term. However at some other banks, custodians and asset managers, balance sheet is accessible and still relatively cheap. Some of these institutions are looking to enter the market, and have done so, with enhanced custody financing type offerings.

It remains to be seen whether these new entrants will continue to enjoy low costs of funds, and as such, see some of the profitability associated with the pre-2007 era, but it's worth watching this space.

"These collective financing businesses have one key requirement to be profitable: access to money."

BCBS 239 – One year to go

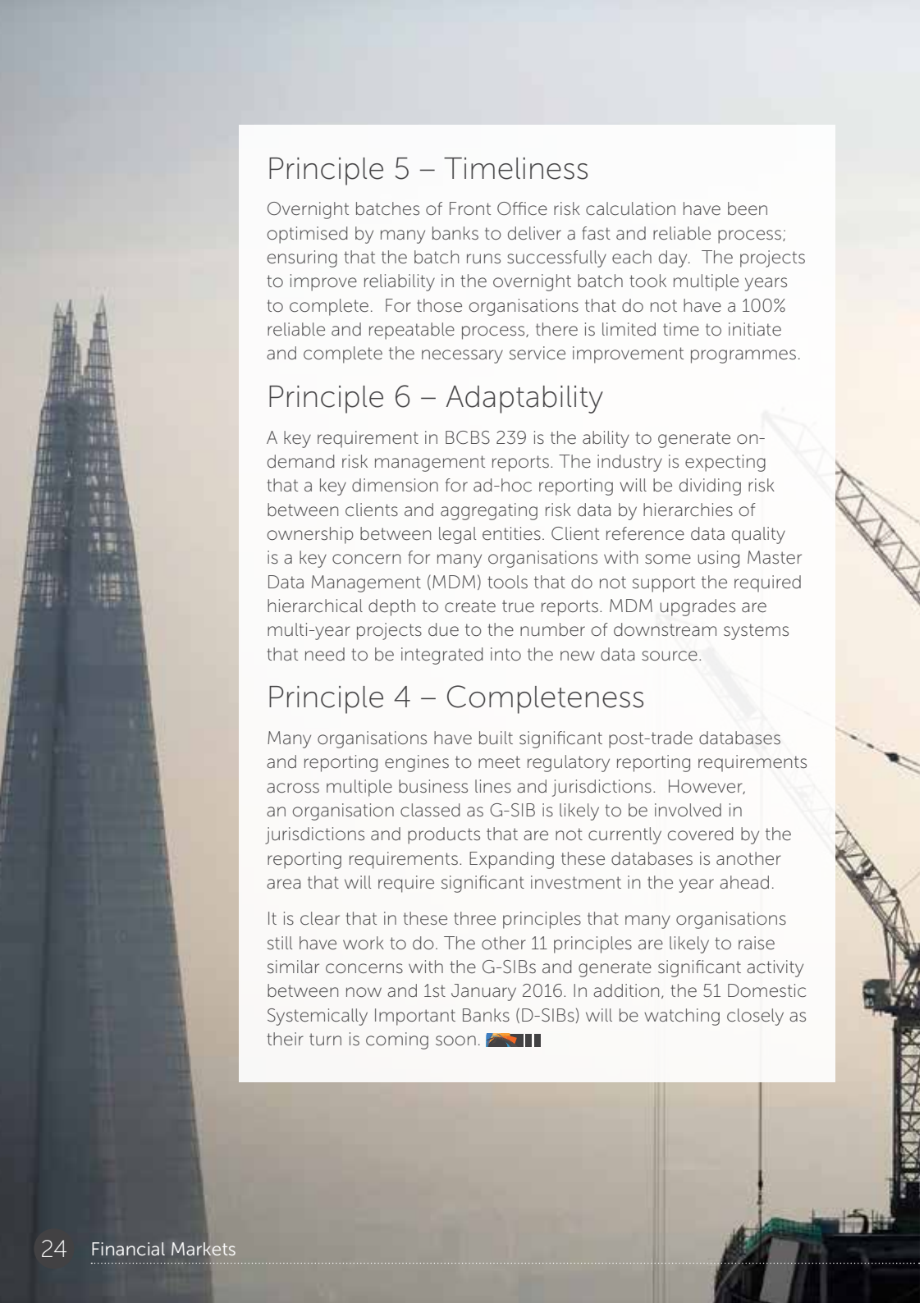
The Basel Committee published its 'Principles for effective risk data aggregation and risk reporting' in January 2013. The document opens with a quote from T. S. Eliot:

Where is the wisdom we have lost in knowledge?
Where is the knowledge we have lost in information?

We believe that two further questions can be added to this list:

Where are the funds we have lost to other projects?
Where has the time gone?

The 30 Globally Systemically Important Banks (G-SIBs) have been working towards delivering the three core areas of governance, data aggregation and good risk reporting practices. However, the last two years have seen a flurry of delivery across multiple regulatory projects including Dodd-Frank, EMIR and Volcker. This has progressed to the point where regulations with later compliance dates and even revenue-generating IT projects have suffered through lack of funding. It is almost certain that BCBS 239 work in some banks has been a victim of this new approach to aggressive prioritisation of IT funds and resources. The question is, which of the 14 BCBS principles will the G-SIBs be able to meet by the end of 2015? >>



Principle 5 – Timeliness

Overnight batches of Front Office risk calculation have been optimised by many banks to deliver a fast and reliable process; ensuring that the batch runs successfully each day. The projects to improve reliability in the overnight batch took multiple years to complete. For those organisations that do not have a 100% reliable and repeatable process, there is limited time to initiate and complete the necessary service improvement programmes.

Principle 6 – Adaptability

A key requirement in BCBS 239 is the ability to generate on-demand risk management reports. The industry is expecting that a key dimension for ad-hoc reporting will be dividing risk between clients and aggregating risk data by hierarchies of ownership between legal entities. Client reference data quality is a key concern for many organisations with some using Master Data Management (MDM) tools that do not support the required hierarchical depth to create true reports. MDM upgrades are multi-year projects due to the number of downstream systems that need to be integrated into the new data source.

Principle 4 – Completeness

Many organisations have built significant post-trade databases and reporting engines to meet regulatory reporting requirements across multiple business lines and jurisdictions. However, an organisation classed as G-SIB is likely to be involved in jurisdictions and products that are not currently covered by the reporting requirements. Expanding these databases is another area that will require significant investment in the year ahead.

It is clear that in these three principles that many organisations still have work to do. The other 11 principles are likely to raise similar concerns with the G-SIBs and generate significant activity between now and 1st January 2016. In addition, the 51 Domestic Systemically Important Banks (D-SIBs) will be watching closely as their turn is coming soon.

Market Data – Time for a Rethink?

The rise of electronic and algorithmic trading has led to larger volumes of market data during a trading session. Fast asset classes such as equities and FX often challenge the network bandwidth during busy market conditions.

FIX has become the prominent protocol for market data. FIX is however very verbose and its performance limitations have become apparent as market data volumes have increased. There have been attempts to make FIX a more efficient protocol such as Fast FIX. According to Paul Heffernan, principal consultant at Brickendon: "Fast FIX is a complicated addendum to an already complicated protocol. Perhaps it's time for a rethink."

Notably, the industry seems to be moving in this direction. Some exchanges have developed their own proprietary protocols for market data. Euronext has UTP Market Data Protocol and Nasdaq has ITCH. The FIX standard is considering new protocols such as ITCH for market data.

Market Data Best Practices

A market data protocol should be simple. The cost to develop an adapter should be low to facilitate widespread adaption. Simple suggests a protocol addressing a specific use rather than a protocol intended for multiple use.

The message size should be compact to facilitate low latency and high throughput requirements, and busy market conditions. This suggests a binary protocol rather than text. Most data transmitted is numerical and binary data takes approximately one-half the space of text. Boilerplate and redundant information should not be present in the message.

There are two protocols for network data transmission – TCP/IP and UDP. UDP is more lightweight than TCP and can multicast (send messages to multiple destinations simultaneously), but it is also more complicated to work with. Data packets may get corrupted and messages may not arrive in sequence. An application supporting UDP needs to be able to handle these scenarios using check sums, sequence numbers and retransmission requests. TCP handles message sequencing, retransmission and checksums for the user. Ideally messages are small enough to be transmitted over UDP if desired. UDP IpV6 has a typical max size of 1,500 bytes; that's not too much room.

Many protocols follow the market snapshot followed by an incremental update approach. A snapshot provides a full view of the market for an instrument. Then incremental updates that should be applied to the snapshot are sent. The consumer must maintain the depth of book for the market when applying these incremental updates. The intention is to save space by only supplying updates. If however, there's the need to retrospectively find the state of the market it is necessary to apply all updates from the snapshot to the time in question – potentially millions of incrementals. If the snapshot was requested at 07.00 and you want to view the market at 16.00 that day then you've got many incrementals to apply.

Heffernan believes that a stateless protocol is better. A single message would contain complete depth of book for that instrument. It is straightforward to view the market at any period of time because all the data is there. It simplifies the logic required to consume the market data feed. It's easy to run calculations on the depth of book. It works well within trading applications that typically have complex throttling and threading logic, and it is easier to pass an atomic data structure around the trading application then a delta batch.

"Fast FIX is a complicated addendum to an already complicated protocol. Perhaps it's time for a rethink."

A market data message should have a source timestamp. This can be used to determine the latency between the source and the destination.

The protocol should be universally fair and easy to apply for all market participants whether price makers, price takers or an exchange.

An FX Example

For brevity, we will concentrate on the market data message. There will be additional messages to logon/logoff, subscribe/unsubscribe to instruments, request a retransmission, and a heartbeat message for times of inactivity.

The market data message will have a header containing Source Timestamp, Instrument ID, CheckSum, and Counter. The timestamp is for measuring latency. The CheckSum is to verify the contents of the message. The Counter is for sequencing messages on the consumer end should they arrive in a different order than that in which they were sent. The TCP protocol will checksum and sequence packets for the user, but UDP will not. Therefore a TCP consumer can ignore these fields.

All fields are 32-bit unsigned integers. These support a number range between 0 and just above 4 trillion. To keep below the 1,500 byte capacity for UDP we can have 46 data fields in the message. Prices will have a scale of 6, so to specify the price 1.23456 you send 1234560, 100.50 becomes 100500000.

The market data will consist of a number of bids fields and a number of offers fields. Counting these and the four header fields there are 40 remaining fields for market data. We supply price and quantity for each level in the depth of book. That's room for 20 prices, or 10 levels of bid-offer depth. If UDP is not required then there is no limit to the depth of book.

This should be suitable for most FX use-cases, but the protocol may be adjusted as required.

Software Complexity: Impact on Maintainability

What is Software Complexity?

In software development, 'complexity' refers to the nature and number of interactions between entities within a system, rather than to the complexity of the task that the system performs.

As a system is developed, it is likely that the number of entities will grow, and with this the number of interactions between those entities. As complexity increases, it can become increasingly difficult to maintain a complete understanding of those interactions, and therefore what is actually happening within the system when a particular event occurs. This in turn increases the time that it can take to implement new functionality and to fix bugs, while also increasing the likelihood of new bugs being introduced while fixing another.

Measuring Software Complexity

Measures of software complexity have been developed since the 1970s in an attempt to quantify the internal working of a software system rather than rely on a software developer's subjective opinion.

Some measures of complexity attempt to model the communication between different modules of code, and consider how closely each module relies on internal knowledge of another module (known as 'coupling') to function. Lower coupling results in a more modularised system, which should be easier to test, maintain and enhance.

Another such metric is 'Cyclometric complexity' developed by Thomas J. McCabe. Cyclometric complexity is a measure of the number of potential paths of execution through a system; the more paths there are, the more potential ways a system could take a wrong path and produce an incorrect result. High cyclometric complexity will also increase both the testing and the maintenance burden because each possible path will have to be tested and maintained.

Of the many ways to measure complexity within a software system, the ones that provide greatest value to a project will depend on the business requirements and the development environment. It may be that a software system build on top of a legacy platform will have a certain amount of essential complexity because of the nature of the existing system. Similarly, a greenfield build may have more freedom to employ whichever best practices the development team deems most valuable.

The Cost Implications of Software Complexity

In 2013, $542 billion was spent on software with $132.2 billion of that being on custom-built software alone, and, considerable attention has been devoted to controlling software costs. Historically, this has been achieved by focusing on tools and techniques designed to make software development as a rapid and inexpensive as possible. This focus is however shifting from the development phase of a software lifecycle to the maintenance phase because for every $1 spent on development, $3 is spent on the maintenance and enhancements.

Software complexity has been widely regarded as a major contributor to software maintenance costs because increased complexity means that maintenance and enhancement projects will take longer, cost more, and result in more errors.

Sajeel Chaudhry, consultant at Brickendon says: "Developing with an aim to reduce complexity will lead to a longer development phase, but this will be more than compensated for by the huge savings during the maintenance phase by reducing labour, improving lead times for bug fixes, enhancements and critical changes."

What Factors Need to Be Considered?

Developing with an aim of reducing software complexity can be used for cost projection, manpower allocation, and programme/ programmer evaluation by following the three steps below:

1. Develop software complexity metrics tailored to the project dependent upon structure of the system being developed. Software complexity is usually measured as a matrix of complexity indicators including vendor risk, skillsets required, time to resolution of incidents, infrastructure complexity, speed of regression testing and end user performance among others.
2. Use of multiple regression techniques to identify units, subprogram or programmes that require a reduction in complexity.
3. Planning phases to re-work the software to reduce complexity; this is similar to Hardened Sprint in Agile where code/bugs/ technical debt is reduced.

The Direction of Development

In recent years the focus has shifted towards software development approaches that are designed to improve the system's maintainability by introducing automated testing at the earliest stage, writing small modularised units of code and working in short 'sprints' of work, often with a sprint set aside for 'refactoring' – reworking an area of code that may have been rethought, or become overly complex.

Additionally, there are now improved debugging tools, integrated refactoring functions, static analysis tools and continuous integration platforms, all of which help developers to make changes to a system that is under development with confidence. If however, a system already has a high level of complexity, these tools are less helpful and can provide a false sense of security.

As this all highlights, reducing the complexity of a software system during build can have a positive impact on both the costs, and the time that it takes to enhance the system further.

Why You Need the IT Crowd

The FX eCommerce space is becoming increasingly challenging and at the centre of all this is the IT director, who will this year again be tasked with delivering more with less.

Task prioritisation is an increasingly difficult and critical job.

Ageing and legacy systems need to encompass ever more – more products, regions, regulatory controls, and reporting – typically with smaller budgets and fewer people. The constant need to make the best use of limited resources to meet business expectations at a reasonable and accountable cost in the face of these pressures renders the job of the IT director ever more difficult. In doing so, it has also made the role increasingly central to the success of financial institutions.

Current challenges reflect three things: uncertainty arising from an evolving regulatory environment, the imposition of increasingly stringent and onerous penalties, and the squeeze on margins resulting from an increasingly and globally accessible FX marketplace.

In today's business climate, rarely, if ever, is a list of work or projects smaller than the available resources. As a result, task prioritisation is an increasingly difficult and critical job. The responsibility for working through this process for individual components falls under the remit of the IT directive, but overall rules of the game are usually dictated at a higher level, typically by fluid business imperatives.

An IT director needs to decide how projects will be ranked and rated alongside each other with a suitable scale to be able to make clear, strategic decisions on how best to allocate resources. The need to respond to the redefinition of priorities handed down by the business must form part of the overall IT strategy, with attendant budgetary and manpower contingency issues. Although this uncertainty goes against strategic behaviour, the IT director must ensure that IT

strategy is sufficiently robust to cater to the fluidity of the business.

Typically, IT budgets are both shrinking and comprise multiple funding sources from different business lines. Technology groups need to manage this matrix of paymasters and create a high-level coherent resourcing plan. The IT director needs to gather requirements from all business sponsors, size and cost the work involved to deliver the requested functionality, and build a book of work for the year. A means by which to prioritise the work will be required in line with what all parties involved need and want.

Stakeholders require a high-level view of all the work requested. This data must be accurate and sufficiently transparent to allow them to make informed prioritisation decisions. The IT director's plan would show who has requested the work, what is involved, and how much resource is necessary to deliver the functionality. Additionally, there must be a level of uniformity to allow comparison between work requests. The output from this process would be a run-book of IT development based over an agreed period of time.

As the budget process is usually annual, organisations typically have a yearly IT roadmap. Those involved should recognise this as an aspirational schedule because market events, increased regulation or business changes can easily derail a plan that is too rigid. There is also a case for having a shorter period of planned work with a more flexible longer-term view, which will allow unexpected changes to be more easily absorbed.

The prioritisation process is a key attribute in the deployment of scarce technical resources. An iterative method allows flexibility for the business to change priorities in a relatively short period of time.

Value-based prioritisation is a mechanism that tries to achieve the maximum business value in the minimum time possible. There is a concept of ranking the 'value' of a piece of development work, which would be based on agreed criteria. These weightings could be risk reduction, revenue potential or technical measurements. They would be applied across the work catalogue and provide a matrix of ranked development requests, essentially, a shopping list for the business to assess. This method can provide an adaptable and iterative development process. The stakeholders need to be actively involved in the business features' delivery schedule and would be able to continuously adjust requirements as necessary. To be successful however, this approach needs an effective governance structure where all relevant stakeholders, both in business and technology, engage in reviewing business priorities regularly.

The IT director must ensure that IT strategy is sufficiently robust to cater to the fluidity of the business.

Business partners also need to be able to understand, at a high level, the repercussions of changing the priority of an in-flight piece of development. For example, not releasing a near-complete component could make sense at a business level, but would have implications on downstream systems that would necessitate more costly development work at a technology level. Project managers need to be able to articulate these inter-dependencies to business partners as part of the decision-making process.

Ultimately, although the main role of eCommerce IT groups is to deliver business functionality, there will always be essential technical programmes that deliver little discernible business benefits, but are critical to the continued viability of the IT platforms and components. This type of work includes architecture or software upgrades, new technology infrastructure, and addressing technical debt. These are often longer-term projects that need consistent funding to achieve their goals and ensure that the technical framework continues to be capable of supporting the ongoing FX business. The IT director should own and allocate the budget for these types of projects on agreement with the business heads.

There is a continuing debate about the merits of strategic goals versus tactical objectives. If business stakeholders are only assigning priorities for IT deliveries for a rolling six-month period, does there need to be a view on a longer-term strategy or, as in most organisations, is a shorter timeframe all that the business can realistically dictate? This is yet another challenge facing the IT director.

Is Automated Regression Testing (ART) the saviour of your business?

"More than 90 per cent of the applications that are critical to business are legacy systems."

There's an old adage, 'if it ain't broke don't fix it,' but what happens when you want to enhance your existing software? ART could just be exactly what you need.

ART is an automated suite of software regression tests that are carried out to ensure that the changes or enhancements that have been made to the software haven't broken its existing functionality.

It offers a range of benefits, including:

- Preventing reputational loss – If the new version of your software is not thoroughly tested and an existing functionality is broken, your reputation is at significant risk.
- Preventing financial loss – A broken existing functionality can result in huge financial losses with system defects undermining your business.
- Preventing loss of time and human effort – There is a high risk of error where regression testing is carried out manually, and typically a lot more effort and lead-time is required for each release.
- Accelerating your business – ART ensures faster, safer improvements to your business.

ART clearly offers huge benefits, but how easy is it to build, particularly for legacy systems and/or software that customers are already using? In these instances, ART needs the following:

- A clear set of requirements.
- Time and involvement from the developers as well as the application owners.
- In some cases small adaptations (like change in field object properties) in the applications.

Most of the legacy applications will have limited or no requirement documentation, and application owners are likely to be very busy with continuing production and maintenance issues. It is likely that the project team will be hesitant to perform even small changes at short notice because they have to analyse the impact of changes in advance. More than 90 per cent of the applications that are critical to business are legacy systems. Reflecting this, the challenge of implementing ART can be significant and can cause difficulties in aligning client expectations throughout the project to ensure that they get quick return on investment. As Brickendon has discovered however, with the right approach, these challenges can be addressed and the fruits of ART fully realised.

Ground Zero – A working example

A large European investment bank had a legacy software application in the form of a customer-facing trading system. Every time a change was made to the application, a huge testing effort was required to ensure that the new release had not affected the system's existing functionality. Failure to do this correctly could severely compromise the bank's reputation, in turn leading to huge financial losses. Manually, this testing process was time-consuming, unreliable and was costing the company considerable time and money. The challenges included:

- Starting the whole testing project from scratch because there were no business requirements documents in existence.
- Ensuring that all requirements were forecast in advance and that all issues were highlighted upfront.
- Ensuring that enough time was allocated to accommodate automation requirements because the application owners were themselves very busy in production maintenance.
- Managing client expectations and ensuring that their requirements were reasonable, particularly given that this was the department's first automation project.
- Building all test cases from scratch because the application had no existing manual test pack.
- Ensuring accountability and clarity at all stages of the project.
- Adhering to the client's expectation of a quick return on investment.
- Providing enough time for the stakeholders to adapt and perform small changes (like object properties) in the legacy system to successfully complete the project.

Resolving the challenges

To resolve these types of challenges, one approach is to implement an effective test checkpoint system to ensure that the test scope, automation requirements and accountability are clear to testers, developers, other stakeholders and sponsors. This approach makes the process clear to everyone involved, ensuring that all parties are on the same page from the very start.

It is best to get all stakeholders involved in the process from an early stage, a move that fundamentally helps to meet client expectations. This can be achieved by providing the stakeholders with a defined project scope and/or brief as well as clear timeframes for the project. Any amendments sought by the client can then be made before the actual test implementation. This in turn, eliminates the need for additional reviews and reworks, which have the potential to prolong the project and delay the processes.

To provide the client with further benefits, an efficient move is to implement a reusable test automation framework and a mechanism to obtain maximum test coverage with minimal code. It is also a good idea to implement a methodology to integrate all the test assets. This helps to reduce the manual intervention in the testing process, improve maintenance and achieve faster test results analysis.

To ensure that the project deliverables are delivered on time and transparency with the client is maintained, it is best to modularise the deliverables and implement a three-dimensional level tracking system.

According to Bala Ethirajalu, senior manager at Brickendon, the firm has set about solving these issues by developing "a set of innovative methodologies that are not available off the shelf". Ethirajalu goes on to explain that: "These included our Time Check Point System (TCPS), Functional Test Automation Solution (FTAS) and ITTA (Integrated Test Tools Approach). These methodologies helped us to deliver the project on time with highest quality. Through the three-dimensional tracking approach, we were able to efficiently manage all project issues and changes, and still deliver the project on time. Most importantly, we won the confidence of the project stakeholders. We were able to reduce the testing efforts to just overnight from a three-week testing time lag for every release."

Notably, banks have started favouring horizontal system implementation to reduce overheads. With cross-asset integration however come additional complexity and a higher regression-testing burden. These factors mean that now more than ever, the sector needs a structured approach to ART. Without this there will be more outages and a much longer time to market.

"Now more than ever, the sector needs a structured approach to ART. Without this there will be more outages and a much longer time to market."

Why it Pays to Invest in Defect Management

In any software development life cycle defects are inevitable. Managing their number and minimising their impact on a project are the primary goals of a successful defect management process. Investment in this process can yield significant benefits by reducing the time, cost and resources required for any rework, as well as dramatically improving the developer's ability to deliver software projects on time and to budget.

Common Mistakes & Best Practices Defect Process

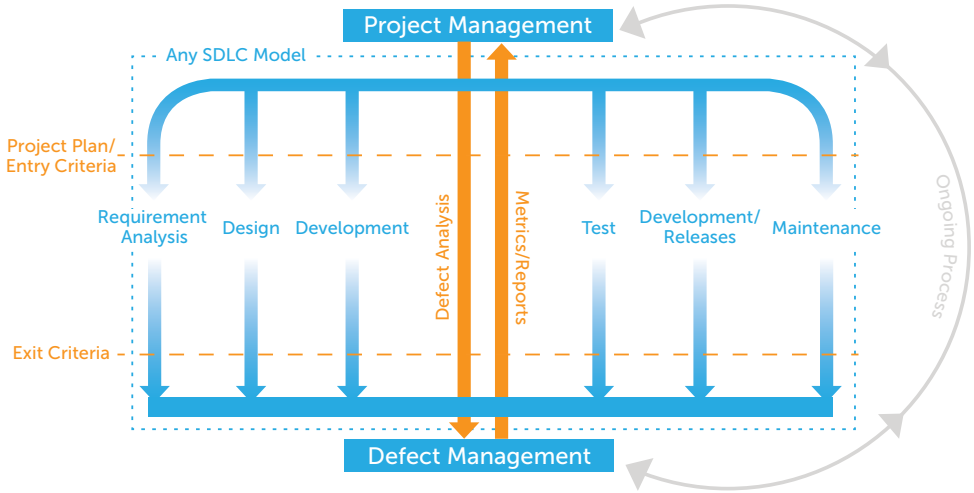
Common Mistake: Testing teams are only involved in a project's testing phase once development is complete. As such, they can detect the presence of a defect, but can't prevent it.

"Time has to be invested to continuously make improvements."

Best Practice: A holistic approach to defect management means that the testing team would be actively involved in the whole development lifecycle from inception to delivery. Including the team's expertise in the design phase means that they will have a good understanding of the functionality that is going to be delivered. The testing team should also be able to identify critical risks that could jeopardise the successful delivery of a component or project early in the process because the further down the line a defect remains, the more expensive it is to address. They will be able to devise test cases in collaboration with the development team, which can then be refined and extended as the functionality evolves. As a result, entry and exit criteria for each test would be clearly defined. Once development is complete, the testing team can then focus on high-risk issues and edge cases because other defects should have been eliminated or mitigated throughout the development cycle.

Having the testing team integrated into the development lifecycle offers an efficient mechanism to improve the quality of software development as well as ensure the successful delivery of projects.

Defect Management in SDLC



Defect Tracking Tools

Common Mistake: The defect management process is conducted via email or spreadsheets in an ad hoc way. The complexity of systems, magnitude of projects and number of people involved makes it difficult to manage an effective process in this manner. There is no standardisation in the capture of the defect's details and it is very inefficient to attempt to track the status of a defect via email between multiple parties with numerous updates. There is also no way to flag up the importance of a defect in a developer's already overcrowded inbox.

Best Practice: Ideally the project team will have a common defect management tool, which all members of the team can access and update. Details about a defect should be captured in a standard way with a minimum amount of information. This data would include the defect's identifier, steps that need to be taken to reproduce the defect, its severity and priority, and its potential impact, including the degree of risk it poses. The tool would provide the ability to assign defects to other parties as part of the defect management workflow. All updates would be captured in this system to provide a central repository of information and an audit trail of the progress of the issues. It would also contain a prioritised list of pending requests. Additionally, there should be a means by which to produce reports as needed, to provide status, information or measurements for interested parties. Jira, Bugzilla, Quality Centre and ClearQuest are examples of defect management tools commonly used within organisations.

Process Improvement

Common Mistake: As teams are busy doing their jobs, little time is given to reviewing and improving the defect management process.

Best Practice: To continually improve the efficiency of the defect management process, time has to be invested to continuously make improvements. Communication between the various team members is essential in any project. As part of the Agile development lifecycle, development teams often hold retrospectives once a project or component has been released or completed. These discussions address the successes and failures of a release or project, and review any potential changes in the process that would improve the next release. The testing team should be included in these discussions.

A review of the defects detected could show any potential oversights in the design, development or test processes. Resolutions or workarounds to bugs should be documented and would form part of the handover to production support people and end-users.

Overall, it is clear that pursuing a holistic approach to testing where it's fully integrated into the whole development lifecycle provides an effective and efficient way of ensuring the quality of the components released and improving the delivery schedule for future releases.

The Ever-Changing Landscape – Social Media Within the Financial World

Since the breakthrough of social networks the way people interact and communicate has changed in an astonishing way. Newly presented numbers in a study on social media show that social networks are estimated to reach 2.55 billion people by the year of 2017. Given the world's population now stands at more than seven billion people clearly social networks such as Facebook, MySpace, Twitter, Yelp, Flickr, YouTube, LinkedIn and the like are an integrated part of many people's lives.

The term 'social media' was added to Merriam-Webster Collegiate Dictionary in 2011 and is described as: "Forms of electronic communication (as Websites for social networking and micro blogging) through which users create online communities to share information, ideas, personal messages, and other content (such as videos)." That the human behaviour concerning communication has changed rapidly because of these new and advanced technological developments is rather mind-blowing. The interaction between people and businesses seems to have a never-ending development curve and the speed with which this is taking place, can sometimes be difficult to manage.

If we compare various industries, the financial market is one of the most recent industries to have entered the social media networks environment. Several years ago large global financial institutions didn't have any sort of presence in the sphere. The general consensus among people from the industry, with little or no knowledge in the field, would be to not waste any resource on this 'hot topic' and rather focus on making money. What has happened in recent years however, is a steady stream of development towards a more social media marketing-friendly approach among not only financial institutions, but also the industry's market-leading spokespeople. What people have realised is that this is a hot topic that might actually be worth investigating, and importantly it is one in which money can be made. In a world where personality and the moral and ethical aspect of a company is important, these new social platforms can play a vital part in strengthening a company's position and bring it to life in a way that was not possible before social networks were introduced. ››

How Well Do You Know Me?

"Now the customer wants to get to know you.."

'To know your customer' is a phrase that has been used for decades. Not only in the client onboarding sense, but also to understand people's behaviour and the psychology behind decisions. Social media turns this concept on its head with financial institutions entering a new era of information sharing. Now the customer wants to get to know you. Recently published figures show that nearly one-third of consumers use information from social media networks when evaluating financial institutions. So whether it is a private high-net-worth individual choosing a private bank, an investor looking for IPO representation or an individual wanting to find a pension broker, what is being said about companies in social media will most likely affect the outcome of their decision. This in turn impacts on your business.

Global financial institutions are today increasingly buying into the social media-marketing field. The industry is adapting at an impressive speed with strong results. The aim is to make brands stronger, obtain a larger market share, and to limit the amount of unfavourable information about the company online. Social media networks are, in addition to customer-engagement, also a great way for monitoring brand activity, particularly against competitors.

Moving Forward – Where Are We Heading?

To master social media networks is an art. It is relatively easy for a person to write a blog, post pictures on Instagram or Flickr, create a pinboard on Pinterest or use Twitter. How large global companies who operate in a strict and regulated industry will adapt to this development is very different. This industry is heavily regulated and restrictions within the financial industry make it challenging. There is also the concern about the fine line between commenting on and giving advice based on news, with the latter regarded as more of a risk. That said, it is crucial for global financial institutions to be present on social media networks. If they aren't they risk missing out on valuable customer information.

What social networks can provide in terms of customer information is something that we have not experienced previously. Customers take primacy and businesses must find new ways to compete for their attention.

That a rather conservative and old-fashioned industry has slowly started to change its mind about social networks is very exciting and also extremely satisfying because it shows that the industry is developing to get closer to its customer. Where this might take us in a few years or even within the next 12 months will be interesting to see, but one thing that is certain is that it will probably surprise us all.

Brickendon Consulting is present on Linkedin, Twitter and Facebook. To follow please visit the Brickendon website, www.brickendon.com

Medallion Men

"In 2013, two medallions were auctioned for $1.3 million apiece.."

New York taxis have been the subject of debate recently with taxi app Hailo announcing that it is ending its experiment in the US. Hailo has cited the intense competition from San Francisco-based Uber and Lyft as its main reason for not breaking into the US market. Indeed, Uber even abandoned its 'surge pricing' policy to offer reduced taxi fares in New York to break into the market.

Uber's business model threatens the incumbent 'stand and hail' method used by London's black cabs and New York's yellow cabs. As a result, Uber has faced opposition across the globe from Australia to South Korea. The New York City Taxi and Limousine Commission (TLC) has however mounted a robust defence by launching its own 'e-hail' service and allowing firms like Uber to integrate into it. By bringing the Silicon Valley start-ups into the fold, New York taxis have been protected.

Obviously, the TLC has an interest in protecting its members, but the potential prize is much bigger than the standard $2.50 per mile. There are billions of dollars at stake.

To collect passengers in Manhattan requires the car to have a medallion pinned to its body. This practice was initiated during the Great Depression when people deprived of their livelihood started unofficial minicab services to earn a living. Traditional taxis petitioned the City, went on strike and held protests including setting taxi cabs alight in Times Square. Eventually the City responded and in 1937 the Hass Act was passed issuing 13,595 taxi medallions at a cost of $10 each.

Since then the number of medallions has ebbed and flowed. During the Second World War a few diligent citizens returned their medallions to demonstrate that they would not waste gasoline on non-military activity, and in 2006 the City issued 308 additional

medallions mainly for 'handicap accessible' taxis. The total number of medallions in circulation currently stands at 13,237.

Meanwhile New York's population has grown, as has its relative world standing. Medallion costs have risen too. In 2013, two medallions were auctioned for $1.3 million apiece. This increase from $10 to $1.3M in less than 100 years puts New York taxi medallions among the best investments of the 20th century outperforming gold, property and most stocks.

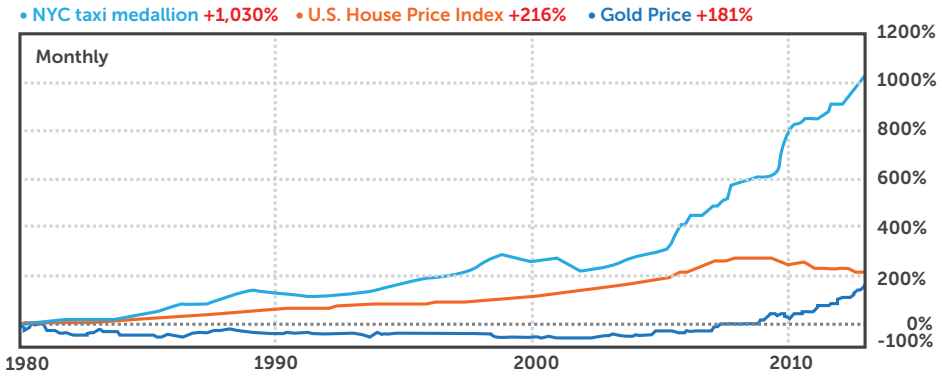
The high cost of medallions puts them out of reach of drivers ('hacks') meaning that instead fleet owners and investment companies attend auctions. To obtain the necessary returns, cabs are operated on a near 24/7 basis with multiple hacks per car working in shifts. Now the City is looking to cash in.

Legislation currently under scrutiny would allow the TLC to issue a further 2,000 medallions with a potential one-off revenue of more than $2 billion. There are several obstacles to overcome. The legislation will need to be passed, despite the protests of current medallion owners, and TLC will need to determine how to auction the medallions without significantly lowering the market price.

In the meantime, TLC controls the fares, the auctions and now the e-hail service. Its billion-dollar payday cannot be far away.

The value of a New York taxicab medallion, or licence, has soared 1,000 per cent since 1980, making it a better investment than either gold or the housing market

Performance Comparison



Sources: Federal Housing Finance Agency, New York, New York City Taxi and Limousine Commission

Contributors

James Baker

Chris Burke

Sajeel Chaudhry

Bala Ethirajalu

Dean Gammage

Priya Gupta

Paul Heffernan

Frida Johansson

Jasmine Koh

Lalin Liyanage

Nathan Snyder

Richard South

Brickendon provide consultancy services to solve the challenges, both internal and external, faced by businesses operating in the financial markets.

Today's business and trading environment is ever gaining in complexity. Over the last few decades, we have seen that the ability of organisations to remain competitive in the overcrowded financial markets is critical. An increasingly challenging regulatory environment has also made it essential for market participants to have a clear understanding of changes in order to drive their own strategic vision.

At Brickendon, we undertake proactive research in order to be able to respond to industry developments in the financial markets as they happen. We constantly perform in-depth analysis and evaluate the operational implications in banking and trading organisations. We are committed to maintaining high-level research integrity in order to provide independent and first-class solutions to our clients.

Contact us at:

107 CHEAPSIDE
LONDON EC2V 6DN
T +44 (0) 207 397 3760
E INFO@BRICKENDON.COM
W WWW.BRICKENDON.COM

BRICKENDON

Client aligned, business focussed