Brickendon Journal 05

BRICKENDON

Practice Makes Perfect

"Hold onto the values and identity"

Practice Makes Perfect is a phrase we're all familiar with, and one that according to a well-known children's charity, we will continue to use as we mature and grow.

While the NSPCC is using the motto to launch a campaign promoting the importance of pearls of wisdom, for Brickendon it is about ensuring we hold onto the values and identity that have brought us success so far as the business grows and expands into new areas.

Growth is a major theme for Brickendon in 2015. We have recently relocated into new offices in Canary Wharf to aid that expansion as well as to put us closer to many of our major clients.

During the year we intend to focus on the following areas:

Practice – Building on the recognised success of our Knowledge Leadership function by leveraging the extensive experience of our senior management, together with their industry-wide networks, to ensure that the best intelligence is available to our clients.

B-FIELD – a bespoke local business and IT delivery facility which addresses the challenges of resource and location strategy being experienced by many of our clients.

Vendor Partnerships – working closely with "best in class" vendors to ensure that we can provide intelligence and explore creative delivery options for our clients.

How do we achieve this growth and also hold onto the things that make us who we are? To do this we need to look at the basics:

Knowledge

Knowledge is at the heart of our business and industry, whether it's intelligence on technical matters, latest industry trends, proven methodologies, common client focus areas, peer-group comparisons, the strengths and weaknesses of different vendors in a given marketplace, or emerging regulation and its real-world interpretation.

Taking that knowledge and using it to maximise value for our clients, as well as simultaneously driving our own growth, needs structure and specialism. That in turn leads us to a term we've all heard of before – the Practice. But, many consultancies have Practices, don't they? Does it really mean anything these days? Well, those are fair questions and ones which have been given a great deal of thought at Brickendon. As with all things, if we're going to do it, how can we do it better than our competitors?

There are, we believe, three main areas that distinguish a truly effective Practice from a mere collection of individuals – People, Penetration and Presence.

1. **People** – Skilled in the practice area with many years of specialist experience, who also keep abreast of the subject area and contribute to our knowledge base. Not just one or two headline experts supported by a mass of more junior staff, but a Practice full of experience so that we can be sure to provide genuine value to our clients. When we deploy a team from one of our Practices, we can be confident that every consultant will add value, and not "learn on the job".
2. **Penetration** – Both Client and Vendor.

   Clients - Broad-based active dialogue is critical with both existing and prospective clients as it's vital to remain current with the sentiment across the industry. Anyone can pick up the latest regulations and read them cover to cover (pain thresholds notwithstanding). But what are our clients worried about? How have they responded to regulation? How does that compare to their competitors? Cross-client intelligence, when used sensitively, can generate value for everyone.

   Vendors - With outsourcing and "buy options" at the forefront of many strategies these days, having a sound understanding of the capabilities of key vendors is critical. With this information we can help provide multiple options & sophisticated solutions to the challenges being faced by our clients.
3. **Presence** – Our reputation is our business, so a Practice needs to build on that by engendering respect with clients, vendors and peers. Attending and hosting industry events is vital in order to promote active dialogue in the practice area. >>

In this case, the focus is on the Practices as living repositories of themed expertise, backed by extensive industry networks and our proven Knowledge Leadership and Research capability. These Practices are then leveraged as vehicles to support the 'perfect' alignment of experience, expertise and services to the needs of our clients. Well, that's certainly something we, as Brickendonians, believe in and is why we're confident that the year ahead will not only see Brickendon expand into new areas and new clients, but do so in a way that strengthens who we are rather than diluting our values.

So, Practice Makes Perfect? Yes, we believe it does.

Contents

Colombian Minecraft

In recent years there has been a boom in mining, thanks in particular to rising productivity in China and the ensuing insatiable appetite for metallic elements. As a result commodity prices have soared boosting the attraction of natural resources and dramatically affecting economies in countries such as Australia and Colombia.

For Colombia, a nation historically troubled by drug trafficking and poverty, the recent surge in mining is proving both a boon and a bane. Whilst the economy has grown, so unfortunately have some crimes, as lax regulation has allowed gangs to run illegal mines to fund their revolution movements and sanctioned mining companies have been able to ruin the ecological and social aspects of the area.

Following a period of acute internal conflict, where fights between left-wing guerrilla groups and right-wing paramilitary groups over the leadership and control of the country were commonplace, recent presidents (Juan Manuel Santos and Alvaro Uribe Velez) have been focussing on changing the world's perception away from Colombia as a drug-trafficking, cartel-dominated nation, to one of great potential thanks to its vast quantities of mineral and energy resources.

The reductions in unemployment and ever-improving standards of living are signs that changes are working, and Colombia is already seen as one of Latin America's fastest growing economies. In 2002, Uribe introduced a Mining and Energy Vision designed to promote Colombia as a mining country, with the aim of being considered the most important in Latin America by 2019. This was furthered by Santos in his National Development Plan, which cited mining as the main driver in achieving annual growth of 5 per cent.

However, in the rush to put Colombia on the mining map, the authorities failed to implement adequate governance for the protection of rights, ecology and the collection of revenues. As a result, some multi-national corporations (MNCs) have been able to make more from tax exemptions than they have paid in corporate income taxes and royalties.

Colombia's Main Minerals and Natural Resources	
Metals and Precious Stones	Gold, Silver, Platinum, Emeralds (some of the highest quality in the world)
Metallic	Nickel, Copper, Iron, Manganese, Lead, Zinc, Titanium
Non-Metallic	Land Salt, Marine Salt, Gravel, Sand, Clay, Limestone, Sulfate, Sulphurs, Baryta, Bentonite, Feldspar, Fluorite, Asbestos, Magnesite, Talcum, Gypsum, Phosphoric rock and Ornamental Rocks
Fuels	Coal, Natural Gas, Crude

Most worrying are some of the government's 2021 targets, such as the doubling of current coal exports and tripling of mining activities, which together run the risk of exaggerating social, environmental and human rights costs if the existing tax regime is not tightened.

The areas targeted with mining are spread out over 30 different zones, some of which are historically very fragile areas that are now struggling with overpopulation and skewed wealth distributions. It has often been reported that economic and social development is worse in areas neighbouring mining operations than when illegal coca crops were farmed.

For example, Cerro Matoso in Cordoba is one of the biggest open-pit nickel mines in Latin America and plans to double production in the next 10 years. Its owner, BHP Billiton, claims to have invested substantially in the local community as compensation for their occupation. Although currently, the downwind village of La Union Matoso is the dumping ground for contaminated waste material that is sharp and polluted with nickel, causing respiratory problems and contamination of drinking water in a village with no medical centre or even sewage treatment facilities. Other problems at such sites include failure to educate the public on the dangers of contact

with the mined minerals and waste products, which has ultimately resulted in cases of skin conditions, injuries and cancer.

Additionally, the villages have had their sense of community adversely affected, particularly when it comes to the personal safety of women. A link between the militarisation of the mining areas and sexual assault has appeared, in addition to the increase in child prostitution, youth pregnancy and general crime.

Environmental damage is generally unavoidable in mining, but in Colombia the practice of illegal mining has accentuated this. The illegal mines are generally more destructive to the environment as they are not bound by policies, they bring non-permitted technology, dredge riverbeds from floating platforms and often refine the sediment with Cyanide and Mercury before dumping it back into the water. Knowledge of these practices are then propagated as acceptable through the communities, as locals are illegally recruited to work at the mines.

The scale of illegal mining can be inferred if you consider that in 2013, Colombia produced 56 tons of gold, despite the official figures from the mining agency and association showing that the nation's two largest producers produced only 6.7 tons between them. The difference can be attributed to illegal mining and contraband.

Movement is underway to limit these mining projects. In its simplest form, protests by the local population have caused significant delays to large gold and silver mines, which has prompted ministers to call for social licenses to be granted from the local communities. A legal tribunal has even gone as far as to completely reverse mining in some areas, such as the halting of 11 mining companies in Choco department, and ordered the return of the land to the native tribe who were forced out by mining activities and violent illegal armed groups.

Aid agencies such as the SCIAF (Scottish Catholic International Aid Fund) have also been assisting the local communities to gain legal titles to their land and supporting them in their legal battles. They have also helped to regenerate the areas to re-establish the farming and set up fish farms. These agencies have also played a large part in trying to encourage alternatives to large-scale mining such as the fair-trade model, which uses traditional mining practices. Although this is generally more costly, it ensures there is a support network in place for the health and education of communities and a fair trade price is ensured for the production which increases the financial stability for the workers.

Recently the Colombian authorities announced the creation of UNIMIC (National Unit of Intervention against Criminal Mining) in addition to a number of supportive reports for changes to the legislation. However, the general sentiment is that the core problems should be dealt with first as the areas under focus have underlying issues of decades of state neglect and poor public policy which have allowed these powerful criminal groups to thrive. Another approach has involved security forces directly attacking the equipment used in illegal mining, destroying 52 machines in 2014, and the National Polices Carabineer squad who have challenged around 3,000 mines resulting in the closure of 1,000 and over 5,000 arrests.

With ever increasing foreign direct investment (FDI) in Colombia's mining and hydrocarbon sectors, it has never been more important for these corporations to be held accountable for their actions. Whilst it is difficult for such companies to avoid the extortion tactics used by criminal groups, there is now an increased focus on Corporate Social Responsibility programmes, which aim to ensure that some of the benefits received through mining are ploughed back into the local environment and community.

Programmes often take on a life of their own...

...and easily deviate from strategic objectives and the agreed plan. Negative perceptions often lead to re-naming the programme without addressing the root cause.

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Brickendon offers the Programme Maturity Assessment as a means of addressing programme issues and the wider change culture. A series of reviews and interviews identify recommendations for remediation and provide a structured path to positive outcomes.

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Read our case studies at www.brickendon.com

"...nothing can be said to be certain except death and taxes"

Whether it was the words of Daniel Defoe in 1726, or those of Benjamin Franklin more than 60 years later, the sentiment is clear. But, does the same sentiment apply to the new European Financial Transaction Tax (EU FTT)?

"A mechanism for generating revenue for governments"

At first glance a Financial Transaction Tax has many benefits: a steady income stream for participating governments (very welcome in the current climate), improved transparency and a reduction in harmful market behaviour by way of an Anti-Social Behaviour Order for high frequency trading (HFT ASBO).

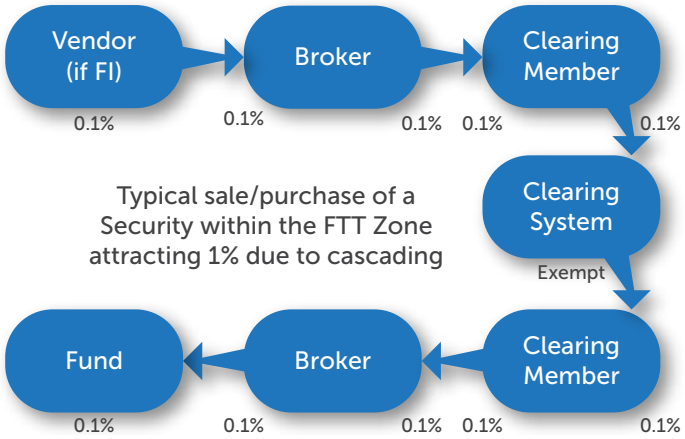
A tax on financial transactions isn't new. Many countries including Belgium, Colombia, Finland, France, India, Italy, Peru, Poland, Singapore, Switzerland, Taiwan and the UK have, or have had, a form of Financial Transaction Tax, and even the US imposed such a tax from 1914 to 1966 - although it only exists now as a "Section 31 Fee" to support the operational costs of the SEC.

The concept of FTT was fully articulated in 1936 by the economist John Keynes as a mechanism for generating revenue for governments and bringing market stability. Then in the 1970s, Nobel Laureate economist James Tobin proposed a Currency Transaction Tax (CTT) to manage exchange-rate volatility, prompting the term "Tobin Tax".

However, while there is no doubt it is a well-established concept, the aftermath of the financial crisis and ensuing desire for increased stability (not with-standing the revenue generation aspect for participating governments) has given it new life.

So are we to assume its introduction is certain and that it's just a matter of scope and timing?

Well, let's look a little deeper. In reality, the burden of the proposed tax could be much more severe than intended due to the cascading effect of the transactional tax (see below), which will impact the financial markets in both participating and non-participating jurisdictions. More specifically, the impact of FTT on smaller and less liquid markets could be significant due to their typically longer transactional chains.



"Negative impact on economic growth and capital markets"

The UK was concerned enough to issue a formal legal challenge in 2013. In response to this, the Court of Justice of the European Union (CJEU) said that the UK's arguments against the proposed FTT were "directed at elements of a potential FTT" rather than the European Commission's decision to allow participating states to develop an agreement under the "Enhanced Cooperation" procedure. Critically, it also said that the judgment did not prevent the UK from issuing a subsequent challenge against the proposals themselves once these were fully developed.

Many non-participating member states are concerned that the tax will push investors to move transactions elsewhere, and some finance ministers fear there will be a negative impact on economic growth and capital markets. The EU Commission's own research estimates that the impact of FTT (excluding derivatives) on EU GDP is likely to be 0.28 per cent. Given the economic growth environment at present, this is certainly something to consider against the estimated revenue of 0.25 per centEU-27 GDP.

"Is anything certain about EU FTT?"

Of the original 11 member states (Austria, Belgium, Estonia, France, Germany, Greece, Italy, Portugal, Slovakia, Slovenia, and Spain), only Greece has refrained from committing itself to the agreement. This now leaves only 10 active member states as the leading group for EU FTT. This is being driven under the European Union "Enhanced Cooperation" procedure which allows for a minimum of nine EU Member States to co-operate within the structures of the EU without all member states being involved.

So is anything certain about EU FTT? Well, right now it's genuinely difficult say. But it's hard to see how the changing EU presidency won't be a factor in the political landscape.

2015

- **Jan – Jun: Latvia (Non-participating member)**
  Some believe that FTT will not sit high on the agenda and negotiations may falter.
- **Jul – Dec: Luxembourg (Non-participating member)**
  In March 2012 the government officially opposed the EU FTT, with the Minister for Finance stating that his country was "not opposed philosophically", but that it must be implemented globally. Luxembourg supports the UK's legal challenge.

2016

- **Jan – Jun: Netherlands (Non-participating member)**
  In October 2012, the Netherlands said that it would adopt the proposed EU FTT provided that it was not imposed on pension funds, there was no "disproportional overlap" with the current bank tax and that revenue flows back to the member states. These conditions have not yet been met.
- **Jul – Dec: Slovakia (Participating member)**
  Expected to push the FTT agenda

2017

- **Jan – Jun: Malta (Non-participating member)**
  Opposes a FTT due to concerns that it would harm the competitiveness of the country's financial sector

In early January 2015, in what appears to be a significant shift in position, France declared support for a broader-based EU FTT. This is a significant expansion in scope from its own equity-based FTT

"Very significant technology and operational change"

that was implemented in 2012, and is more closely aligned with the derivative-inclusive Italian variant implemented in 2013. As many of us will remember, there was a great deal of work to complete in order to achieve compliance for the deadlines of both!

On January 27 2015, at the urging of France and Austria, ministers of the 10 EU member states issued a joint statement in which they reiterated their commitment to reach an agreement on EU FTT. The statement didn't contain technical details, but stated that it should have the widest possible tax base and low rates, whilst taking into account the economic impacts and the risk of financial transaction relocation.

So does this mean that a broad-based low-rate transaction tax, including derivatives, will be introduced within a year, or that pension funds will be excluded as a concession for Netherlands if no agreement is reached until their EU Presidency in January 2016?

Well, in unfortunate contradiction with the opening statement, it's hard to say. However, what is certain is that this will represent very significant technology and operational change and may well cause institutions to consider whether to implement yet another tactical solution or whether to move earlier in order to align a more efficient solution with their technology, business and tax strategies.

MIFID II

Background

When the Market in Financial Instruments Directive (MiFID 1) was first implemented on November 1 2007, its main objectives were to improve investors' protection, increase competition and help create a single functional market across the EU. The key aspects of MiFID 1 are: authorisation, regulation and pass porting, client categorisation, client order handling, pre-trade transparency, post-trade transparency, best execution and systemic internaliser.

"MiFID II will dramatically change the entire marketplace"

Even though the European Commission believes that the implementation of MiFID 1 encouraged greater competition between trading venues across the EU and created more choices for investors, the following problems were identified:

- Market fragmentation created a complex trading environment for investors and regulators

- The market participants do not equally experience the increased competition created by MiFID 1
- The rate of change in the market, and technology developments, created a gap in MiFID 1 provisions
- The recent financial crisis exposed the weakness of MiFID 1 in regulating other complex financial products

In order to establish a safer, transparent and more responsible financial system across the EU financial markets, on October 20 2011 the European Commission adopted two legislative proposals to carry out a review of MiFID 1: a directive (MiFID) and a regulation (MiFIR).

So what has changed?

MiFID II is more than just an incremental change from its predecessor. The changes proposed in MiFID II will dramatically change the entire marketplace with significant impact on all players in the industry dealing in financial instruments. Directives allow member states some flexibility in transposing into local laws, whilst regulations are binding on, and take direct effect in, all member states. The following changes are highlighted:

- Trading obligation for derivatives: The commission proposed that all derivative transactions subject to trading obligation be completed on Regulated Markets (RM), Multilateral Trading Facilities (MTFs), Organised Trading Facilities (OTFs) or other foreign venues
- Organised Trading Facilities (OTFs): The commission proposed to introduce a new trading venue category called Organised Trading Facilities (OTFs)
- Systemic Internalisers (SIs): The commission proposed extending the requirements to include certain pre-trade transparency and trading requirements to SIs
- Transparency: The commission proposed new pre-trade transparency rules for equities, covering shares, depository receipts, exchange traded funds (ETFs), and certificates and other instruments traded on MTFs or OTFs. The extension of pre-trade transparency to non-equities e.g. bonds and structured products etc.
- Algorithmic trading: The new rule will introduce certain systems and risk controls, requiring algorithmic trading strategies to be in continuous operation during trading hours and to post firm quotes at competitive prices
- Third-country access: Rules covering the establishment of branches and provision of services without a branch by third-country firms
- Regulation of commodities derivatives markets: The commission proposed rules to support liquidity, prevent market abuse, introduce position limits and regulate the number of commodity contracts any person can hold

- Central Counterparty Clearing House (CCPs): Increased competition between CCPs and trading venues. The parties are given right of access to trading venues and CCPs
- Transaction reporting: The range of instruments that were previously exempt from reporting obligations are now included. Investment firms that were previously exempt are also now included
- Investor protection: restrictions are placed on the commission payments to firms providing investment advice and also the basis on which the advisers are providing advice
- Corporate governance: restrictions are placed on the holding of multiple directorships, and considering diversity
- European Securities and Markets Authority (ESMA): ESMA and other national authorities are given the power to restrict sales of certain financial instruments or types of financial transactions

Impact of the Changes on the Market, Investors and Investment firms

MiFID II requirements will force significant changes to business processes, systems, data and people within the financial markets across the EU. The level of impact for trading venues, banks and other financial services firms will differ according to their respective trading activities.

We will now consider the impacts the new requirements will have on the investment firms and their counterparties, the market and the products:

Investment Firms and Counterparties

MiFID II introduces new stringent rules in relation to clients' risk sustainability and the type of information that the clients are required to disclose in order to show their risk appetite and ability to bear loss. Other areas of the regulations that will have a significant impact on the firms and clients include:

Payment for order execution – the new requirement that "firms shall now receive any remuneration, discount or non-monetary benefit for routing client orders to execution venues" is a significant loss of revenue for brokers who act as agents. As a result, investment brokers will need to start evaluating their options and look for other opportunities to generate revenue. **Best execution** – which requires firms to publish information on the top five venues they use annually so as to compare with the information available from the venues. **Telephone records** – availability of telephone records to the client. **Organisational requirements** – this relates to management of firms and conduct requirements in areas of product governance and prohibition on title transfer collateral agreements for retail clients. **Transaction reporting** – the requirement is extended to include instruments traded on MTFs, OTFs and other financial instruments traded as underlying in other trading venues. Firms will need to conduct a gap analysis to identify the gap between the existing transaction reports and the expected report once MiFID II comes into effect. Investment firms and their clients need to also consider the impact of **position limits** and **position reporting**

The Market

Under MiFID II, clearing of derivatives under the EMIR regulation is required to take place on regulated markets, MTFs or OTFs. Pre-trade transparency will be introduced for SIs, and all other firms operating bilateral trading will need to be assessed to ensure that their activities will not lead them to becoming SIs. The current **Trade Repositories** will need to be reconsidered to ascertain whether further authorisation is required to continue their engagement in Consolidated Tape, Consolidated Tape Provider and Approved Publication Arrangement. Other areas to consider will be High Frequency Trading, Tick Size Regime, Co-location and the Market Data Services & Concentration Rule.

The Product

Structured and complex products will follow the suitability requirements of MiFID and also be exposed to the same capital requirements that apply to other banking products. Products that are difficult for clients to understand the risk of return or the cost of exiting will be categorised as complex products in the new MiFID requirements.

Adequate product governance regime will force firms to assess the relevant risk attributes of a product, to identify the investors that will be buying the product, and ensure the product approval process and provision of information is adequate.

Position limits and position reporting are not imposed on commodity derivatives and the aim of the limit is to achieve convergence between prices in delivery month and spot prices. In addition, most financial services that were previously exempt will need to be reviewed to ensure that their activity is 'ancillary'. Other products such as emission allowances and other physically settled contracts traded on OTFs will be regarded as financial instruments under the new MiFID II rules.

Timing

Although the current work on MiFIDII/MiFIR from the European Commission's view is almost complete, ESMA is expected to review the regulation and publish a consultation paper that will guide the market participants and the national governments. These should be finalised between 2015 and 2016 and MiFID/MiFIR compliance starts on the 1st of January 2017.

The Great Rice Crisis of 2008

Rice is a world staple food for over three billion people. In the UK, the average person consumes around 5.6kg per year, a figure which would be substantially lower without our growing multicultural status and tastes. But in an Asian country such as the Philippines, the average yearly consumption rises to 123kg per person and despite farming almost 18 million tonnes of rice, the Philippines still needs to import 10 per cent of its rice requirements, making it the largest importer of rice in the world – and therein lies the problem.

The Philippines is highly susceptible to movements in the price of rice and much is being done to help make the nation self-sufficient in rice again by 2016. Numerous issues have complicated this over the last few decades; including the tripling of the population to 100 million since the 1960s, the urbanisation of irrigated farmland and devastating Typhoons like Haiyan (known locally as Yolanda) in the most-farmed Luzon region.

The plans to become self-sufficient are highly expensive, involving improvements to the irrigation system, research into climate-smart rice seeds and fertilizers, cloud seeding, improved mechanisation (milling quality), farm price supports and food education to reduce the rice dependency and wastage. The idea behind this outlay is to eliminate the instability in living standards associated with the high prices, something that isn't surprising when 80 per cent of your population are spending a quarter of their income on rice alone.

There have been numerous market events that have in the past strained Asian and African rice-dependent countries and in turn prompted the drive for self-sufficiency. Unfortunately, self-sufficiency is likely to make the relatively small international rice market (when compared to wheat, corn and soya beans) even smaller and, as a result, even more volatile in response to any supply or demand shock.

"People hoarding rice in anticipation of price rises"

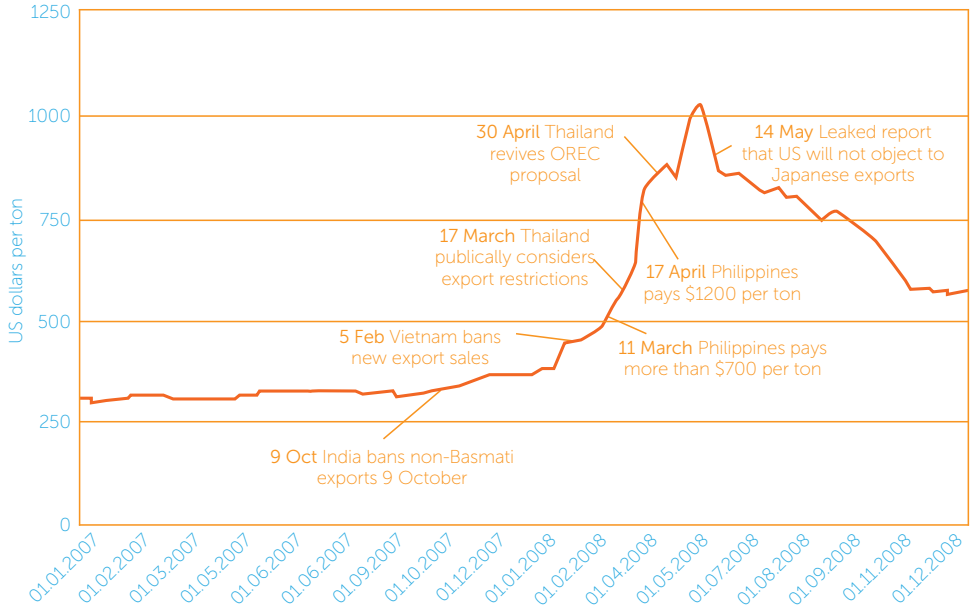
In 2008, there was such a shock which resulted in a huge increase in the price of rice, prompting aggressive buying around the world, grossly inflated prices and ultimately starvation.

This was triggered by the significant actions of the Indian government who had started purchasing rice for their food distribution programs. To ensure that this rice remained plentiful in their domestic market, the government imposed a law in October 2007 that made it illegal to export non-Basmati rice. This essentially meant, that the non-Basmati world market supply was cut by 25 per cent and demand shot up despite farmers around the world reporting record yields that year.

This then caused ripples around the world, with people hoarding rice in anticipation of price rises, which in turn made other major exporters such as Vietnam, Pakistan and Egypt restrict their exports, feeding the spiral and pushing prices even higher. At this point, the Filipino government started creating TV commercials advising people to eat less rice, whilst simultaneously securing imports with foreign state-run food companies. This again fuelled the public anxiety and pushed prices even higher due to hoarding.

Even countries that had a surplus were completely selling out as panic gripped the world, and as a result, the poorer populations were eating less and less as their income was increasingly drained. Such a drop in income not only increases the number of poor people but also pushes people deeper into poverty and hunger. With less money available, the poor are forced to spend less on essential needs such as healthcare and nutritious food.

In a bid to relieve the tension, Peter Timmer, a retired Harvard professor and one of the world's leading experts on the rice trade, and a fellow rice expert, Tom Slayton, started to expose this artificial situation as they knew there was in fact plenty of rice in the world and that the issue was the stockpiling. They were aware that more than 1.5 million tonnes of unwanted rice was stored in Japanese warehouses. The World Trade Organisation had forced Japan to import rice from the US. Due to Japan's history of protectionist measures designed to benefit their national rice industry, Japan was unable to export the US rice without



American approval.

Timmer and Slayton campaigned for, and secured, a deal between the US and Japan that allowed exportation to the Philippines by May 2008. As soon as this announcement was made, prices began to return to normal, despite the fact the rice was never released from Japan. The increased market efficiency was sufficient to quell the price inflation.

"Could cause such repeats of panics and instability"

Going forward, the fear is that this reliance on the world rice market for countries like the Philippines could cause such repeats of panics and instability due to inflated prices. As urbanisation, population and the gap between rich and poor in Asia is increasing, so will demand, prompting the question of whether self-sufficiency can ever really be achieved, and if it can, at what cost. The only respite at the moment is the low oil prices which have reduced importation costs and also, for the meantime, temporarily reduced the need for biofuels, which over the last decade has become a competitor for the arable occupation of rice.

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CROSSWORD

Down

1. Asset that is the basis for a derivative (10)
3. An option with positive value (2,3,5)
6. Combination of monthly and quarterly expiry (6,8)
7. A corporate bond (9)
12. The process of fulfilling a contract (10)
13. American economist who proposed that banks should not engage in proprietary trading (7)
15. Interposing between buyers and sellers (8)

Across

2. Option that can be exercised at a fixed number of points in time before its expiration date (8)
4. Store of data used to decrease latency (5)
5. Home of the Wolf (4,6)
8. Instrument whose value is related to another periodic table (10)
9. Periodic decreases (10)
10. Most significant day in the FX calendar (7,7)
11. The right but not the obligation to sell an asset (3)
12. 640 acres (6,4)
14. Futures price above expected future spot (8)
16. Type of calculation named after the mathematician Mohammed ibn-Musa al-Khwarizmi (9)
17. Post trade activities (8)

For the answers please email info@brickendon.com

Brazilian Real – The power of government intervention

In 1993 Itamar Franco became the 34th President of Brazil, taking the helm in a country suffering from hyperinflation of 2,400 per cent and accepting the challenge of fixing an economy where his predecessors had failed.

The 32nd president, José Sarney, had made price rises illegal, but failed to control government spending, while the 33rd, Fernando Collor de Mello, had stopped printing money and frozen citizens' assets, but was currently impeached on charges of corruption. Into this gloomy situation stepped a quartet of academics who had a plan, the Plano Real.

In the UK, hyperinflation is something that happens to other people – those in the past or those in other countries. As a consequence, we tend to give little thought to its practicalities and the difficulty of breaking the trend. In a situation where prices rise every day, it is difficult to understand how retailers determine the price of goods, how individuals behave when their pay check loses value every day they do not spend it and how to convince an entire nation that the problem is solved?

"A currency that they could not touch"

In Brazil, hyperinflation was a way of life, generating a mass psychological inertia to economic improvement. Each morning, merchants would get together in small groups all over the country and debate what today's price rise was going to be, before agreeing a fixed increase between themselves. These debates took into account rumours about similar industries in neighbouring cities, the increased cost of living caused by retailers in other industries and speculation about government efficacy. In supermarkets, staff were employed almost continually to put new labels on goods reflecting the day's new prices. Many older Brazilians recall shopping swiftly enough to stay a few aisles ahead of the store clerk and his price-label machine in order to get the goods at the old price.

The problem originated in the 1950s when the government increased the creation of money to fund the building of the new capital Brasilia. Since then, in addition to multiple presidents, the country has gone through five different currencies: Cruzeiro (BRZ), Second Cruzeiro (BRB), Cruzado (BRC), Third Cruzeiro (BRE) and the new Cruzeiro Real (BRR). Each currency brought with it the promise of price stability and each currency failed to deliver.

In 1993, when Edmar Basha and the other academics from the Catholic University in Rio proposed yet another currency to break the cycle, it is not surprising that they were met with scepticism. This time however, there was a key difference – the new currency would not exist.

The following year their 'Plano Real' was put into action. All of sudden, Brazilians found their store prices quoted in a currency that they could not touch: the Unidade Real de Valor (the Unit of Real Value or URV). However, when they withdrew money or paid for goods, they still had to do so in Cruzeiro Real. So, for example, one week the price of milk was 1 URV and the storekeeper told them the exchange rate was 1 URV to 8 Cruzeiros. The next week, milk was still 1 URV, but due to hyperinflation, the exchange rate was now 1 URV to 16 Cruzeiros. The result of this was to change the mind-set of an entire country. Now everyone believed that the URV had a static value, whilst simultaneously believing that hyperinflation was still rampant.

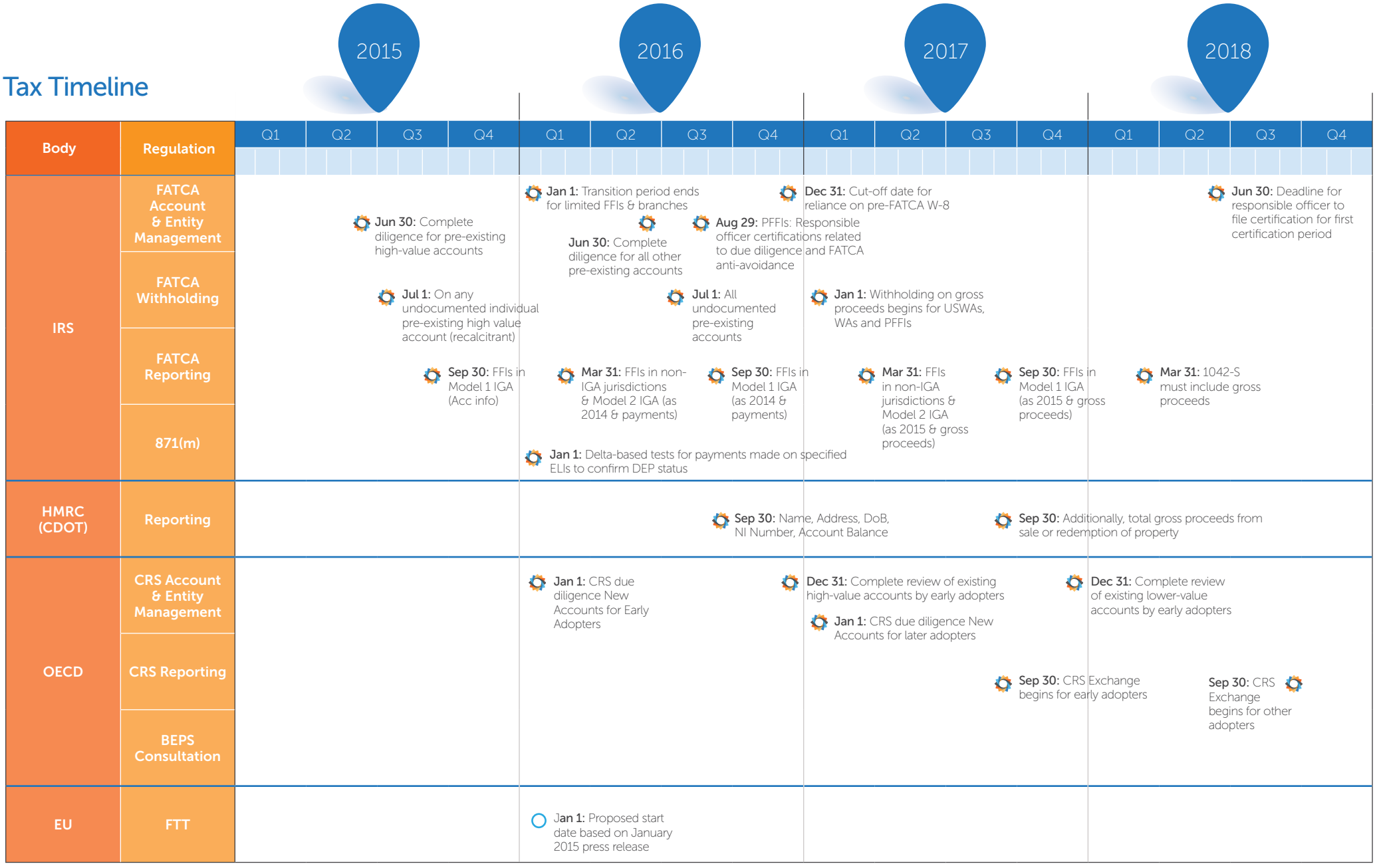
At the same time as introducing the URV, the government slowed down the creation of money and took steps to balance the budget. In addition, they printed an entirely new currency: the Brazilian Real (BRL) and stored it ready for the 'Plano Real' to reach its conclusion.

After six months of the URV, Brazil was ready for the final stage of the 'Plano Real'. On 1 July 1994, the Cruzeiro was retired and replaced entirely with the Brazilian Real at an exchange rate of 1 Real to 2,750 Cruzeiros. The authors of the 'Plano Real' promised live on TV that hyperinflation was over and then watched nervously to see if they were correct.

Twenty years on and the Real is still the official currency of Brazil and hyperinflation is no more thanks to the sensible management of public finances and a risky, expensive, trick played on an entire nation.

The power of government to change economic perceptions and by doing so, also change economic reality has never been better demonstrated. Today's national and international regulatory bodies could use some of that same magic touch.

Tax Timeline



....sUlts you sir!

The User Interface (UI) has long been the selling point for software: the better the UI, the more successful the product. However, as the functionality has matured, so the focus on User Experience (UX) has grown and the desire to ensure the consumer's involvement is as pleasurable and easy as possible has become paramount. This article looks at the changing trend, the way it can be measured, and how some technology firms are now revisiting the hardware design to replace parts of the software.

Since the development of the abacus as a tool for early arithmetic in around 2400 BC, humans have been designing mechanical contraptions aimed at making life easier. While it wasn't until the arrival of Charles Babbage's Difference Engine in 1822 that the first design for a general computer came about, things have progressed quickly since, boosted in the mid and late 1900s by military and government investment during wars, arms and space races.

The early programmable computers used language which was verbose and not intuitive. Since then, computers have become cheaper, prompting an increase in the programming population and encouraging the unification of the languages.

As the world has become more technology focused, software has been developed to carry out many traditionally laborious, repetitive tasks, increasing the importance of accessibility for all. Generally for software design, it is believed that the best way to define what is user friendly or not, is that the program should function in alignment with the Law of Least Astonishment; that is. that the programme should act in a way that least astonishes the user.

As a result, it is quite difficult to quantify a good user experience, because if it works well it is likely you won't notice its userability. By contrast, a bad design in terms of web site or software will

deter repeat usage or visits and therefore reduce a company's competitiveness. As in many things, it is easier to determine what doesn't work well, rather than what does.

"Satisfaction is of greatest importance"

Since 1990 the spending on software has almost doubled to 60 per cent of total corporate IT investment as software companies have added more and more features in a bid to remain competitive. Recently, the main drive is improving the marketing and communication channels through links to social technologies and using this to enable worldwide collaboration and promote a greater level of commercial agility.

Whilst the content of the software is a significant consideration for clients, it is increasingly their satisfaction that is of greatest importance. Where User Interface design and development was once the only consideration, now there is a greater level of competition in the same space as the world becomes more concerned with providing cloud-based computing that can be run on increasingly smaller and more constantly accessible devices. As a result, the User Experience (UX) is becoming increasingly important.

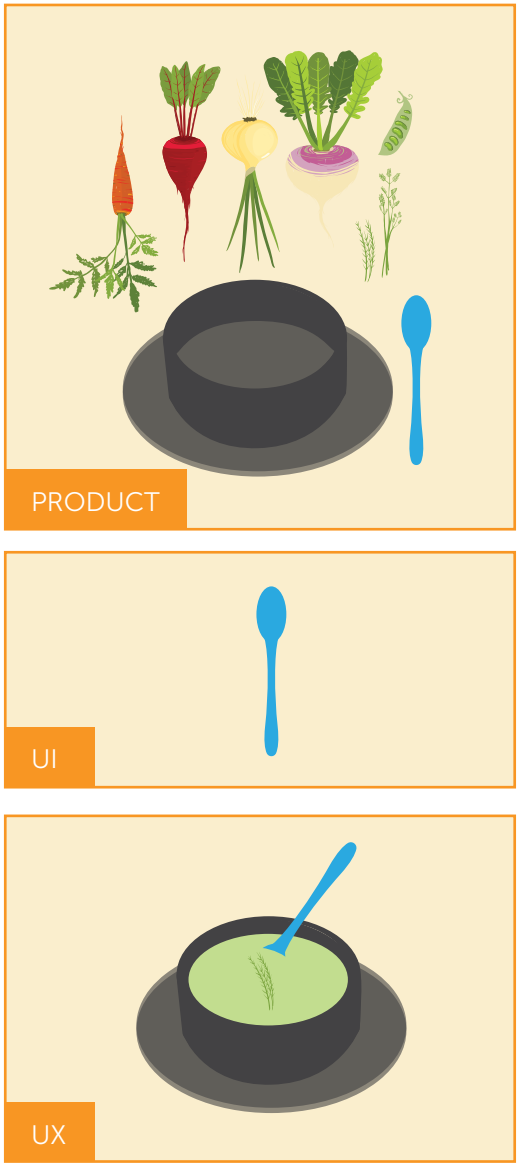
The understanding is that an equal balance of the two is vital for a successful application. Market leaders such as Apple have already paved the way by creating an industry standard through the general design and widely admired user experience of their products. In essence, the UX isn't really a product, but more an Intellectual Property (This has already raised many cases of copyright infringement, although due to the relatively new concept these legal battles are not clear cut.)

The two roles in software design/development that can be distinguished are:

The User Interface (UI) concerns the objects the user views and directly interacts with in order to make the product fit for purpose. Their code, and hence output, is often described as functioning, testable and shippable.

The User Experience (UX) concerns the features of the actual design and layout wireframes in which they need to understand human interaction, keeping the consistency of interaction throughout the implementation through the creation of personas, process maps, specifications and prototypes. The designing phase focuses on the idea of giving the user a positive perception before use and letting them use the application in a way that generates a positive emotional response.

The relationship between the User Interface and Experience of a bowl of soup



There are certain current topical features of websites that can be used to help understand where the UX design may be lacking (ie. it favours the company owning the site rather than the data, consumer or client):

Facebook: Currently Facebook has a feature that by default plays media on the users' homepage without them initiating play. This causes a high drain on data if accessing via a mobile phone, or even a considerable amount of slow down if using an older computer or internet connection. The settings for the default are hidden away in the settings tab and unfamiliar to most. (This may be because the advertisements linked to this type of media are great for revenue generation.)

"Can be annoying for the end consumer"

Living Social: The online marketplace has a different approach to Groupon, in that unless logged in, your landing page will request contact details before allowing you to proceed. This can be annoying for the end consumer who wants to survey the offer they may have viewed on a linked page and see more details before assigning any commitment to the site or the product.

The easiest way to define the difference is that if the user doesn't automatically get the value you promised, then your UX has failed. If the product cannot be used by the user to get the value required, then the UI has failed. Together they will complement one another to make or break your application.

Whilst there is also an argument that UX is basically the design and not the development, there is a clear case and need for UX developers. These developers have a greater affinity with the needs of the customers and upfront interest in understanding more about the users' requirements and implementation strategy work ahead of the UI implementation (in that some changes are gradually introduced to avoid user disruption). UX developers are generally linked to the "Micro/Pixel" element of how the transitions occur between pages, how the buttons are put together, the colours and the responses the user receives.

The increased concern with UX design has required an elaboration of the testing procedures previously employed. Traditionally the duties the users want to carry out are scripted and then replayed either by a subset of the end users, their direct internal contacts, or a dedicated testing team to assess the level of user ability. There has been an increasing number of methods that are being utilised to ensure the full benefit is supplied to the users, to garner that competitive edge:

Split Testing: In which two different designs are shown to end users at the prototype stage to encourage a variety of responses for refinement.

Eye-Tracking: Slightly more sophisticated whereby the user's eyes, and therefore attention, is tracked when scanning the visual interface and used in association with verbal feedback. This is ideal to identify the appeal of design elements and also to determine grouping of the most important information.

Remote User Ability Testing: Similar to the traditional method, but conducted remotely and without supervision, allowing more participants and increased geographical diversity.

"Has become so much more glamourous"

Each method has its pros and cons, although going forward it should be considered that constant evaluation against the market and competitors should be instilled in much the same way that metrics such as Google Analytics is used for website evaluation - bounce rates, visitors, unique visitors etc. This is vital to ensure the best service is delivered and the client base is grown.

More recently there has been some counter-trend activity from the likes of Facebook, which has started to look at unbundling its software to make it more accessible on mobile devices via its internal initiative Creative Labs. Their research has found that mobile users don't want to navigate through many nested menus, but prefer to go directly to certain features such as Whatsapp and Instagram. This allows the users to minimise the distraction element and helps to prevent user fatigue, allowing the individual applications to have their own identities tailored to their usage and be maintained independently based on the users' requirements.

UX design has recently started shifting back across to hardware, an area that used to be dominated by just the ergonomic design of the devices. New concepts, such as configurable buttons, are designed to allow the positioning of a button that can be configured for any use relating to the operating system. Flic (Flic.io) is a product that really explores this concept and from viewing their website you can see how the boring idea of a desktop shortcut has become so much more glamorous. In theory, it could be seen as a backward step; turning the software back into hardware, something that touchscreens have been doing the reverse of for the last five years.

Whichever approach you take, the key, it seems, is to remember that success is not just about content, but about how you get to that content.

Achieving low latency using distributed cache

"Quickest to the market always get an edge"

The majority of market makers for financial products face very stiff competition to provide prices to their clients. Those who can provide their prices quickest to the market always get an edge on the competition, however, to provide an executable price to their clients, complex calculations are required in the background. Gathering all the input data necessary for these calculations tends to be time consuming and therefore financial institutions are always striving to improve their IT systems, both in terms of design and level of technology. As an alternative, they may choose to build a new system where the data for these computations is held in the memory, namely the cache. Increasing the data held in the cache enables faster access to the input data for the calculations. As a result, they are able to publish their prices out to the market quicker.

Over the years, the cost of hardware has plummeted whilst network speed has rapidly increased, allowing financial institutions to take advantage by load-balancing these computations across multiple physical servers. These individual servers may create a local cache of their own, though this itself creates numerous problems, such as maintaining the same version of the data so that different servers produce consistent results. This data includes static data, for example default spreads for counterparty, which can also change. This requires that a single cache must be maintained between multiple physical servers i.e. a distributed cache.

Large multi-national banks generally choose to locate their servers closer to their customers across different geographical locations (e.g. Tokyo, London, New York) thereby avoiding network-related latencies over long-distance communications. So, distributed caching is required to maintain data across various geographical locations.

"Particularly challenging for the servers"

This poses a new technical challenge for implementing the distributed cache that permits these servers to maintain the same set of data to produce consistent results regardless of which server has calculated it and its geographical location. This is particularly challenging for the servers which must be kept up-to-date continuously, instead of periodic refreshing. Examples of such instances include institutions providing OTC products e.g. FX where the market may be opened on Monday morning at Tokyo time and only close on Friday evening at New York time.

Many institutions have built their own proprietary distributed caching solutions. There are also many software vendors who have built products specifically to meet this requirement which are capable of maintaining the distributed cache across multiple server instances (which may be located across different time zones). Examples of these third party products are as follows:

- Hazelcast
- Terracotta / EHCache
- Infinispan
- Oracle Coherence

All of the above providers support more or less the same functionalities, however, for the purpose of this article we will use Hazelcast as an example:

Hazelcast is an in-memory data grid implemented using java libraries, offering implementation of many of the standard java interfaces (e.g. Map, Set, List, and Queue etc.) for supporting the distributed cache. This makes it much easier for the IT teams of these institutions to implement and integrate the distributed caching strategies within their existing systems.

In order to appreciate the challenges, it's important to understand the terminology used in the Hazelcast distributed caching solutions.

Nodes and Clusters

Nodes are the servers (or Java Virtual Machines – JVMs) which actively manage the data. A cluster is simply a logical collection of these nodes. A node can join an existing cluster, or if no cluster is available, it starts a new cluster. When a new node joins an existing cluster, the data in that existing cluster is re-partitioned so that ownership of some of the data is transferred to this new node. For this data, the new node is now the primary owner and responsible for all data maintenance activities, such as backup, persistence, change notifications and locking. By default, a copy of that same data is also held in two other nodes of the same cluster. The primary owner node ensures that the other node's data is kept up-to-date when changed. This means that if the primary node dies, the data is available on the two other nodes, and the cluster is able to recover the data without going back to the database. One of those nodes then becomes the primary owner, and the copy is maintained in another two nodes if available. As a result there is no single-point-of failure.

"A really large amount of data"

Replication vs Distribution

Hazelcast is, by default, a distributed cache (as opposed to a replicated cache). This means that only one node is the primary owner of the data. Other nodes may hold this data, but only in their backup area. However, with suitable settings, all other nodes may be configured to hold a copy of the same data in their backup for faster access. This, effectively, makes the cluster behave like a replicated cache.

However, in a truly replicated cache all nodes hold the data and are primary owners. Hence all nodes are responsible for persistence, change notification to other nodes etc.

An advantage of a distributed cache is that it is possible to hold a huge amount of data in the memory of the cluster, with each node holding only a fraction of the whole data set. For example, if we have 10GB of data and a 10-node cluster, then each of the nodes can hold only 1GB of data in their primary area and 2GB in their backup area, meaning that 3GB of physical memory is sufficient for each node in the cluster. If you have a really large amount of data, it is possible to load whole sets of data by increasing the number of nodes. For a replicated cache, since all nodes hold all data, each of the nodes will require 10GB of memory.

Client Nodes

These are the nodes which join the cluster, but do not have ownership of any of the data. They delegate all activities to the owner nodes. However, they have a very powerful feature - Near-Cache, which enables them to maintain a local copy of any data accessed earlier. The primary node from the cluster is also responsible for maintaining these local copies.

Persistence

The distributed data structures (e.g. Hazelcast Map) may be backed by persistence (e.g. Sybase, Oracle). In addition, both write-through and write-behind operations are supported. In a write-through operation, any change to the data is in sync with the database operation. On the other hand, in a write-behind operation, the transaction returns successfully as long as it has written to the backup area of other cluster nodes. The primary node, at a later time, will then collect all the 'dirty' entries and make the necessary database changes.

A hypothetical example

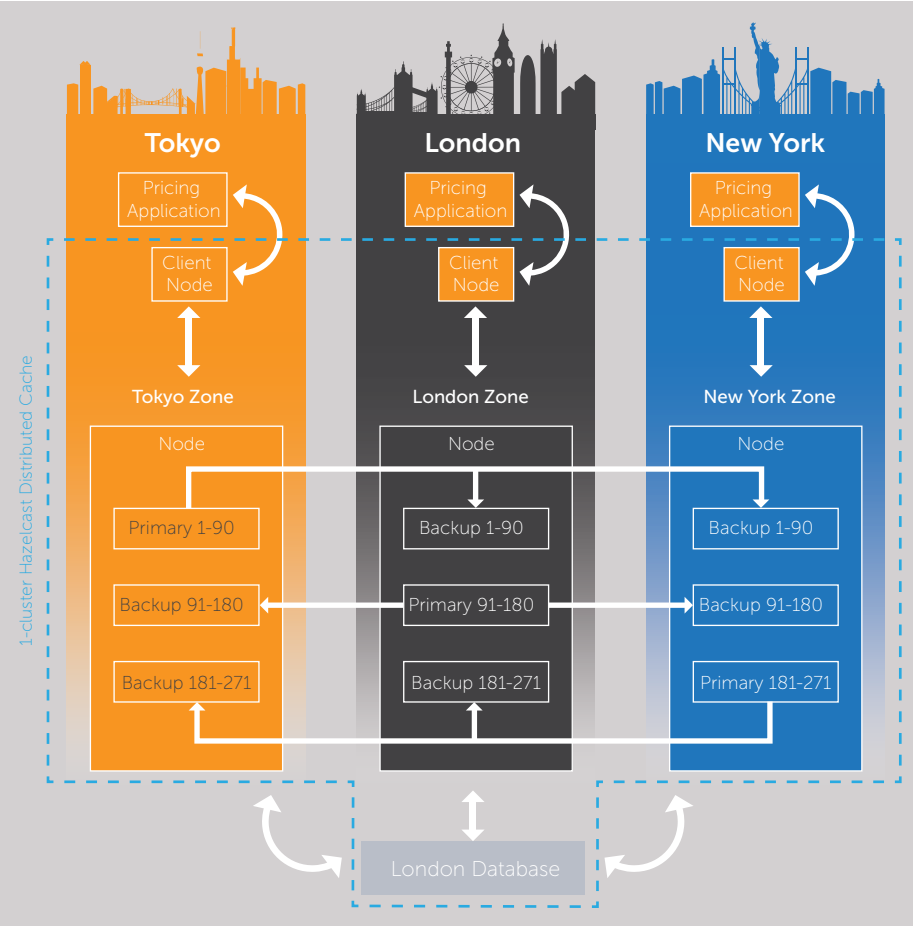
"Conflicts with the large quantities of data that are required"

In the following hypothetical situation we are creating a cluster consisting of three zones (Tokyo, London and New York). In each zone there may be several physical servers connected to the cluster. Any changes to the data by any one server is replicated to the other servers which can be located in the same or other zones.

The database server is located in London. Each server node in each of the different zones can access the database directly. It is possible to create mirrored database servers across all three zones, although this is not required here.

Clients may only connect to the servers located in their local zone. For example, a New York-based client will connect to New York Zone nodes only. This will eliminate any Wide Area Network (WAN) related latency. Moreover, clients will also join the clusters as a Client-Node, utilizing the Near-Cache for its local data preventing unnecessary Local Area Network (LAN) traffic (which may further result in database calls).

As shown in the figure (right), the data is channeled centrally into one place: Nevertheless, this data is also available locally in the cache at each of the servers in all zones meaning that the data can be accessed more quickly. This data may then be used by the client to compute the price. Since the access is local, retrieval time is minimal.



Conclusion

In banking, the urgent need for ultra-low latency often conflicts with the large quantities of data that are required. Hazelcast provides an interesting solution to this challenge. With Hazelcast, many of the data structures or implementations are already familiar to the IT developers. Essentially, the IT team of any financial institution can use Hazelcast or any equivalent software to implement their distributed caching strategy to achieve a very low or ultra-low latency for their critical applications.

Investment in Banking Technology: Why Continued Financing is Crucial to the Industry

Banks are no strangers to technological innovation. Historically they have used these advances to stay ahead of the game, expand client relationships, increase customer satisfaction and drive revenue and profit growth. However, reallocation of spending away from technology and the emergence of new competition from outside of the financial services industry may in the future pose a threat to a sector that has historically been conservative in its approach to combatting emerging competition. As a result, if banks are to maintain their market-leading advantage, it is imperative that investments in technology and development are maintained.

In today's financial environment, banks are hesitant to spend scarce capital on programmes which do not immediately increase capabilities. Development of innovations has, at-times, required investment in emerging technologies and systems with revenue-realization horizons spanning years into the future.

One such cutting-edge innovation was Magnetic Ink Character Recognition (known as MICR Code), which was first used in the US in the late 1950s to enable the reading of cheques to be automated. As a result the number of person hours spent clearing cheques was exponentially reduced enabling the volume of cheques written and cashed in the US to expand dramatically to become the dominant form of non-cash payments in the latter-half of the 20th century. Without MICR's automation, processing cheques would have become unsustainable by the late 1960s.

Two decades later, another advancement fundamentally changed how bank customers access their money. The Automated Teller Machine (ATM) presented an fundemental change in the availability of money. No longer constrained to visiting a branch during office hours, clients were able to securely and effectively retrieve their deposits without speaking to a bank employee. This change prompted a dramatic improvement in client satisfaction as for the first time clients had 24-hour access to their money. It also resulted in a reduction in overhead costs for the bank and greater efficiency in the way they serviced customers. The eventual ubiquity of ATMs has enabled more access to individual accounts than ever before.

Around the time that ATMs were being developed, another magnetic innovation was occurring within banking technology. The magnetic stripe card functioned in a similar way to MICR Code, enabling machine-reading of messages, with the added security feature of being invisible to the human eye. With a simple swipe, these new cards could identify customers when used in ATMs or Point-of-Sale (POS) payment systems and provide access to their accounts.

"Diluted the ability for banks to invest"

As the backbone of the networks that allowed ATMs and POS systems to communicate with banks' central computer systems, the internet was the next big technological breakthrough for the banking world. Internet banking provided a venue for clients to access accounts, pay bills and view investments without having to leave their home or office. A decade later with the shift towards mobile technology, banks were at the forefront, providing mobile access to smartphone web browsers, and eventually developing their own Apps for clients' phones. Today, it is not unusual for an individual customer to use their phone to 'sign-on' multiple times a week.

The investment made to develop these advances has been significant. Banks are estimated to spend between five and nine percent of their annual profit on deployment, maintenance and purchase of new technology hardware, software and services. Leveraging this investment is becoming increasingly difficult as systems become more complex, and additional governance and regulatory oversight come into effect. Tighter margins and shareholder calls for capital distribution have diluted the ability for banks to invest in critical IT infrastructure upgrades and have greatly affected their ability to develop new technologies.

The risk from reduced investment is that new competitors are emerging where they see opportunity and complacency in the existing market. Digital payments, a marketplace where banks and

payment processing companies once held a monopoly, are quickly becoming liberalized by new market entrants targeting gaps in capabilities and consumer expectations.

"It is imperative that they continue to invest heavily"

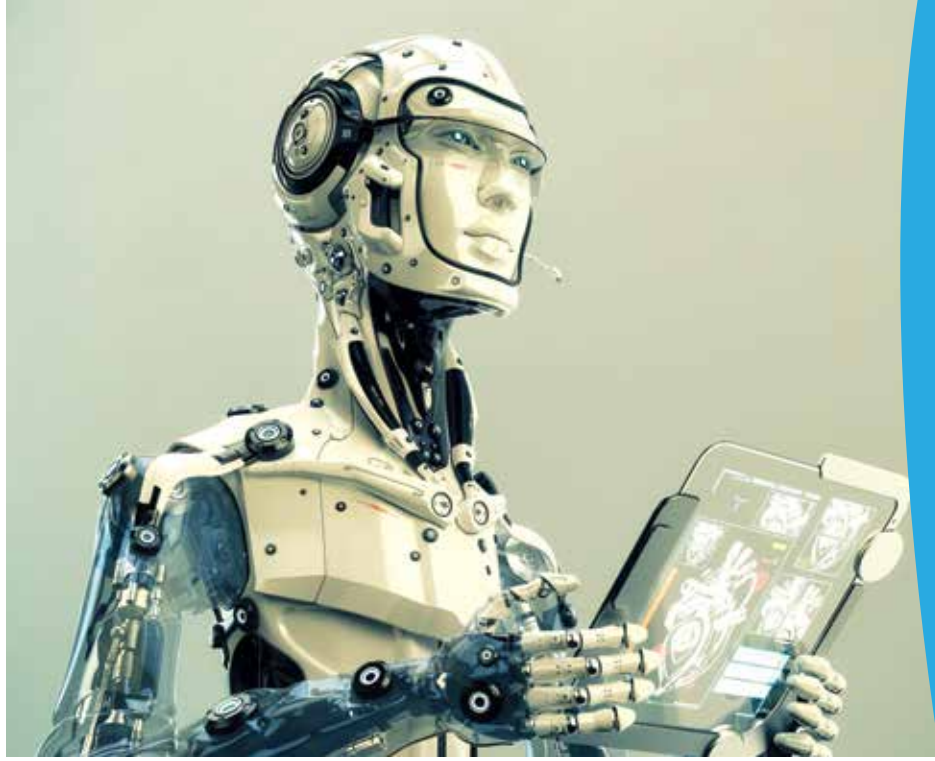
Technology giants like Apple and Google have been experimenting for some time with ways to integrate their smartphone platforms with payments to create digital wallets. Apple Pay, a new system recently launched by the iPhone makers has already gained major prominence in the US market, and will be expanded internationally throughout the next year. Apple is working with banks, credit card issuers and payment providers who operate existing systems and are digitizing them into their hardware in return for a percentage fee.

Samsung meanwhile is also leveraging a similar strategy with its recent acquisition of LoopPay and their Magnetic Secure Transmission chip. Their advantage is that the vast majority of US retailers should be able to accept payment without having to upgrade their existing hardware or infrastructure. The technology will be integrated into Samsung's new line of Galaxy S6 smartphones.

New competitors like this are extremely disruptive as they are able to offer their service at a loss in order to drive adoption of their hardware and software and to undercut existing market participants. As they have less sensitivity to margins on new sources of revenue, they are able to price the market to their advantage.

Barclays Bank's Barclaycard franchise has shown initiative with their bPay contactless wristband payment concept. The bands however are limited to prepaid accounts only and expire in May 2015. New developments are in the pipeline, but have not yet been released.

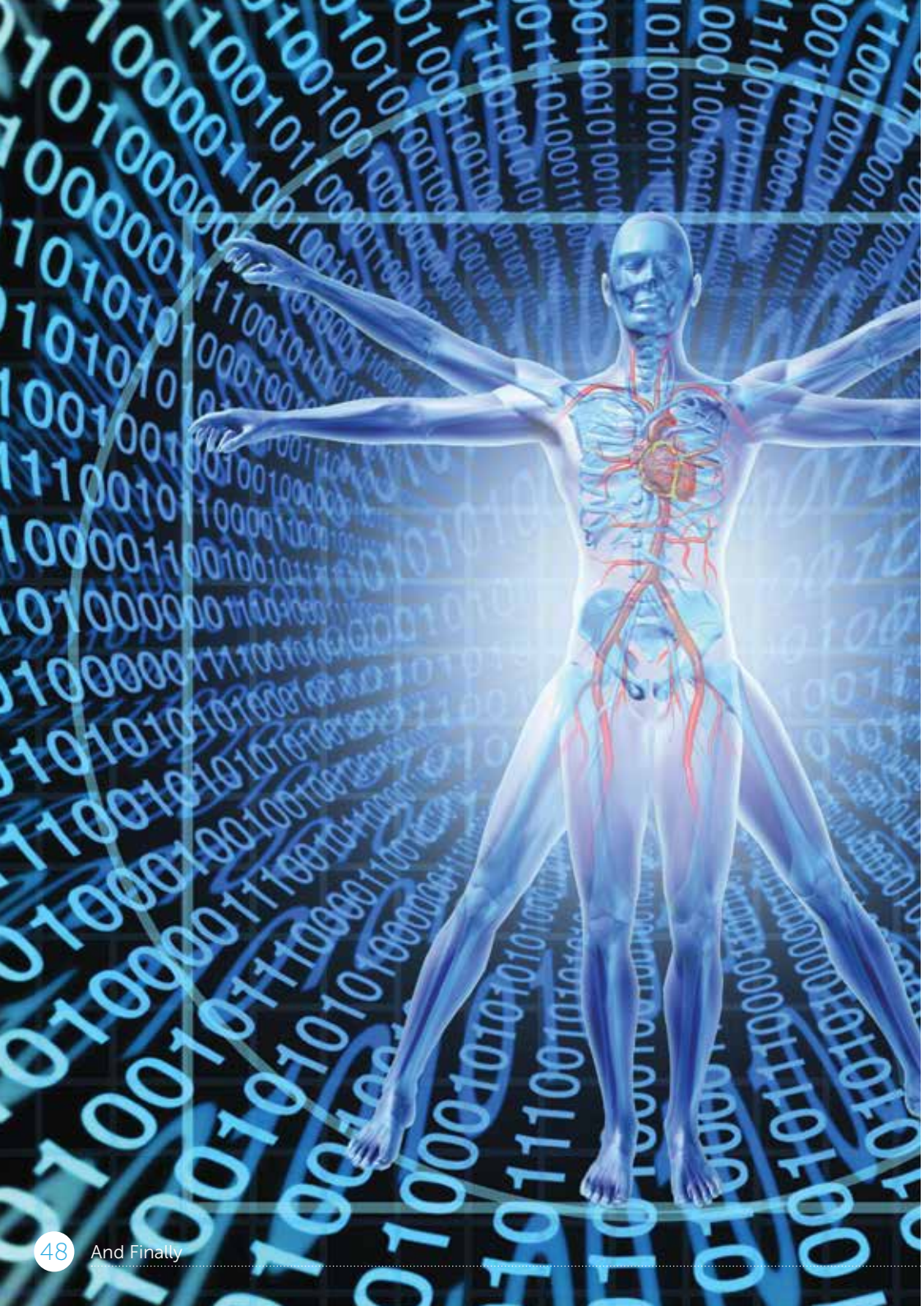
For banks to defend themselves from new competitors and maintain market leadership, it is imperative that they continue to invest heavily in the development of new technologies, whilst maintaining current operations and retiring legacy systems. Crucially, they must address market realities and preemptively react to the threat posed by the intrusion of technology companies into their ecosystem.



"To Be or Not to Be?"

Transcendence, Ex-Machina, The Matrix, Terminator, Blade Runner and Star Wars, the list of movies where human capabilities are being compared, challenged and questioned by computers and software is long. For a number of years Artificial Intelligence (AI) has been a much debated topic and for many individuals it is not only a frightening thought of how a "machine" can be so similar to a human, but it also raises many elementary questions about our existence and our future boundaries, if there are any.

The origin of the expression "Artificial Intelligence" dates back to 1955 and refers to intelligence exhibited by machines or software. Since then, the field has developed rapidly and in 1965 Dr Herbert Simon, one of the founders of AI, said: "Machines will be capable in 20 years of doing any work a man can do".



Others in the field have claimed that: "within a generation...the problem of creating Artificial Intelligence will be substantially solved". Not surprisingly, this has raised a number of questions, some of which occur more frequently than others: when will computers be able to emulate humans and become self-aware and intelligent? How can we control the usage of Artificial Intelligence?

Now, 60 years down the line, it is worth considering whether the experts were right? And if so, where are we now heading?

Throughout the years a lot has happened in the field of AI. Over the last four decades, systems and robots have replaced humans largely through the automation of manual production and replacement of clerical roles by computers and software. The involvement of tech-companies across all industries has pushed this development further as companies such as Google and Facebook are acquiring AI firms and AI experts to solve complex matters which would previously have taken many years to perform and proven costly. Today, the most advanced use of AI techniques is natural language processing; to work out what we mean when we say or write a command in colloquial language – or in other words, Siri for iPhone users or Google's Google Now.

"systems and robots have replaced humans"

In Silicon Valley the debate regarding AI has been intense. Some time ago the former founder of Paypal and chairman of Tesla Motors, Elon Musk, described AI as mankind's "biggest existential threat" and continued by saying "...we need to be very careful". Professor Stephen Hawking added to this by telling the BBC in January that Artificial lintelligence systems could "spell the end of the human race".

There are of course those who disagree. Among those, Microsoft research chief Eric Horvitz, who by contrast said: "I think that we will be very proactive in terms of how we field AI systems, and that in the end we'll be able to get incredible benefits from giving machines intelligence from science to education to economics to daily life."

When reviewing what is being said in the media, it is clear that the real change is still to come. At the end of last year, Goldman Sachs hosted a $15m funding round for a company that focuses on financial data services using AI techniques to deliver financial analysis. Kensho, the company in question, delivers analysis at a rate at which no human can match. This is the first large investment by a global bank in AI and as the desire to deliver services at increasing speeds rises, more institutions will surely follow suit.

To many, AI is still something intangible that only exists in Sci-fi movies, where a system or computer talks and acts but where the human race

conquers in the end. However, developing technical innovations and pushing boundaries is something that we humans have done since the beginning of our time. That we have come to where we are today should therefore not be a surprise. One could almost argue that it is in our genes to always strive for better and faster ways of doing things to further our improve our standard of living.

"humans have done since the beginning of our time"

At some stage however, a balance will have to be found between human and Artificial Intelligence. If it isn't, we risk "technological singularity hypothesis", a term given to the theory that "accelerating progress in technologies will cause a runaway effect wherein Artificial Intelligence will exceed human intellectual capacity and control, thus radically changing civilization in an event called the singularity. "Because the capabilities of such an intelligence may be impossible for a human to comprehend, the technological singularity is an occurrence beyond which events may become unpredictable, unfavourable, or even unfathomable."

This is, of course, just a theory. In the meantime sci-fi movies will continue to encourage us to question what we strive for, and whether a life and environment based on software and computers is the route we want to go down.

As these innovations are directly correlated to economies and economic outlooks it might open doors to new opportunities for many people. Take Honda for example, who after the earthquake in Japan in 2011 developed a robot which is capable of performing tasks in dangerous places on behalf of people. Such support could without doubt ease matters for many people working in dangerous areas. At the same time these developments might close doors for others which will of course stir up the debate further.

This leads us into another area, employment. Nowadays the demand for educated people is higher than ever. As companies, regardless of what industry, are working at replacing human labour with more efficient computers, one could wonder what is the point of spending money on an expensive education when the number of manual labour positions in the marketplace is decreasing. Who will eventually decide where to draw the line?

All these elementary questions can be hard to grasp and that the views vary should not come as a surprise. Infact, as one of our times most well-known poets once said: to be or not to be – that might be the question.

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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.

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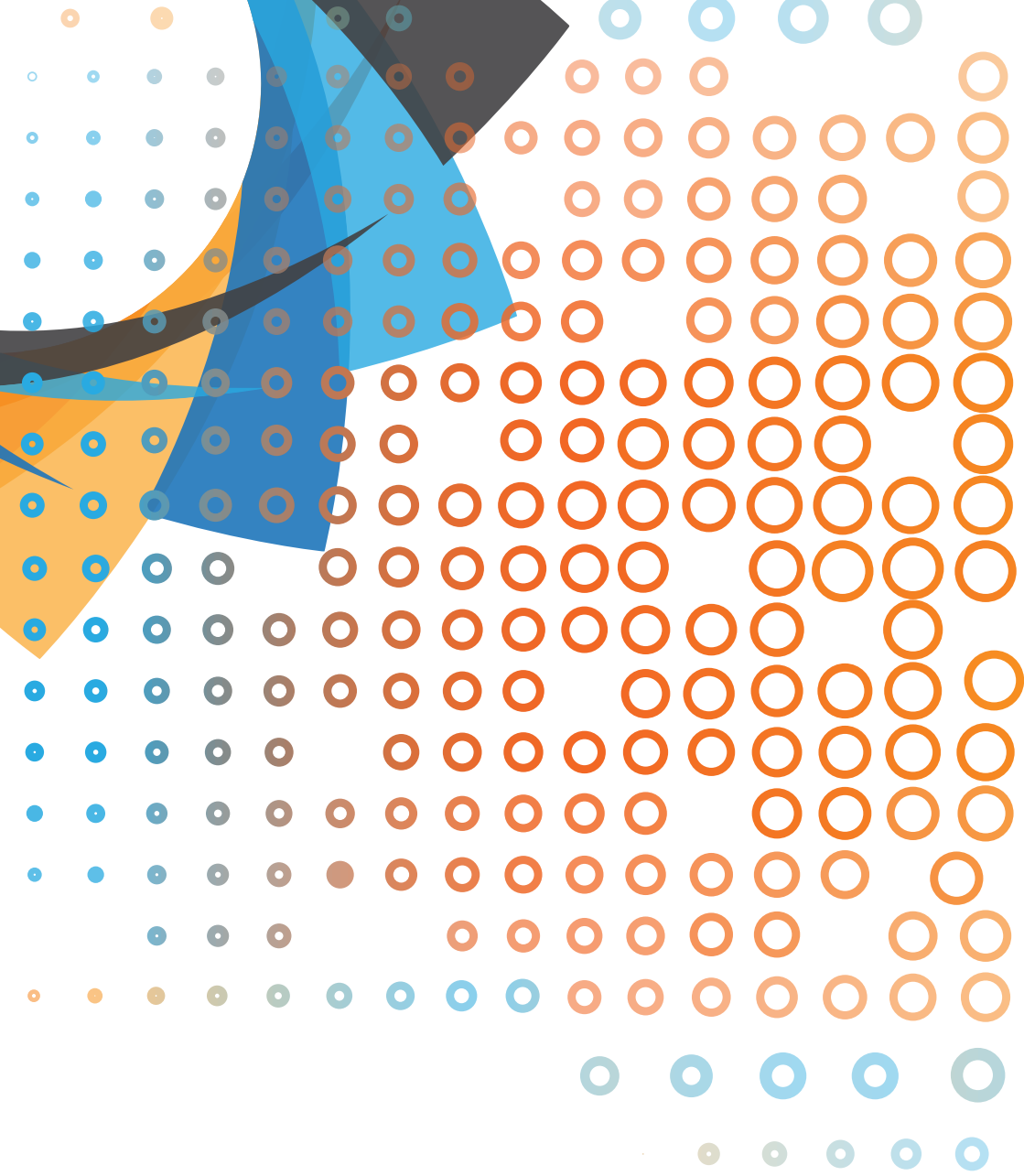

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