The Connected Business

Wednesday September 24 2014

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Upstarts target banks' lunch

New, technologically savvy rivals are aiming to take business from traditional institutions, report *Martin Arnold* and *Murad Ahmed*

Illustrator: Oivind Hovland

Technology is a double-edged sword for banks. Most are focused on providing the latest digital banking applications to their customers and investing in whizzy new technology, such as finger pulse scanners and digital cheque imaging. But they also face growing competition from tech-savvy rivals.

Apple's announcement this month that it aims to revolutionise the world of credit card payments with the launch of Apple Pay, a service that allows customers to make payments by waving their iPhones over a terminal, is widely seen as a wake-up call for banks.

Most senior bankers knew the challenge was coming. "[They] all want to eat our lunch," Jamie Dimon, chief executive of JPMorgan Chase, said in February, referring to the big technology groups, such as Apple, Google and Facebook. "I mean every single one of them, and they're going to try."

Harry Nelis from Accel Partners, the venture capital firm that backs several financial technology start-ups including the UK peer-to-peer lender Funding Circle, says: "There are certain parts of the financial services industry where the big technology groups are well positioned to play and Apple's latest move is a sign of that."

Yet responding to this challenge is hard for banks, many of which have vast IT systems dating back to the 1960s and 1970s that are prone to problems and expensive to maintain. Furthermore, as people check their accounts more regularly on tablets and smartphones, it puts additional strain on those systems.

A report from the British Bankers' Association and EY, the consultancy, found that in the UK alone, almost £1bn of mobile and internet transactions are being processed every day. This year, more than 15,000 people a day have downloaded banking applications in the UK. At the same time, the use of traditional branches has fallen sharply.

A wave of "fintech" start ups has emerged, seeking to disrupt banks' business models. They are particularly prevalent in London and companies such as TransferWise, Zopa and WorldRemit have become significant actors on the global stage in recent years.

Consultants responsible for improving banks' systems say that merely accessing some archived data has been a challenge because of the obsolete formats used.

Also, as banks have expanded through acquisitions, they have tended to bolt new systems on to existing ones, rather than undertake the more disruptive and costly process of fully integrating them. The result is hugely complex IT networks that it may be impossible to untangle.

Often, banks find themselves relying on systems that are unsupported by their IT vendor or cannot be supported by internal staff, yet which are still critical to their operations.

For instance, after Lloyds Banking Group acquired Halifax Bank of Scotland in 2008, it chose to move its new customers on to its core system, rather than invest in building an entirely new platform. In contrast, Nationwide chose the more costly and time-consuming route of investing in a new core system from SAP and Accenture.

UK banks say they are spending

continued on page 3

Inside

Digital era hits investment banks
How regulatory changes and legacy IT systems affect older institutions
Page 2

Lenders attempt new rules of engagement
Banks make huge efforts to bolster their online offerings
Page 2

Traders turn from speed to safety
High-frequency markets look to provide better service all-round
Page 3

How to survive the curse of the inbox
Even senior managers can become paralysed by too many emails
Page 4

On FT.com
Customers turn to mobile banking apps
ft.com/connectedbusiness

Criminals eye markets for a better return on investment

Security

Experts are warning that commodities and futures traders offer a lucrative target for fraudsters around the world, reports *Hannah Kuchler*

Market breakers: crooks may aim to influence transactions

Cyber criminals could turn to the financial markets to make money – using tricks such as shorting stocks before attacking listed companies, buying commodities futures before taking down the website of a large company or breaking into computer systems to steal confidential mergers and acquisitions information before playing the markets.

These are some of the ways advanced hackers could manipulate the financial markets, a threat security experts are warning is just over the horizon.

In a paper last year, Scott Borg, chief executive of the US Cyber Consequences Unit, an independent non-profit organisation that advises the US government on the economic consequences of possible cyber attacks, warned that some criminals are set to go beyond stealing the financial data of customers and start profiting from cyber attacks by manipulating market movements.

"The potential scope of the new attacks is stunning. There is a limit to the amount of money that can be stolen directly by diverting payments. There is no limit to the amount of money that can be made by manipulating markets," he wrote.

Mr Borg told the Financial Times he had been talking to banks privately about this risk for some time, but had been cautious about making public warnings for fear he would inadvertently be giving ideas to criminals.

Now, however, he has seen signs of some early attacks that may be aimed at manipulating markets. "For a number of years, I kept quiet, I didn't want to put the idea into people's heads that this was an enormous opportunity. But that is no longer a good argument, as the bad guys have caught on," he said.

Mr Borg has seen discussion of the potential for this type of attack on the underground forums frequented by cyber criminals and evidence that hackers are targeting government organisations that hold what could potentially be market-moving economic data.

These types of attacks are not yet widespread, as many cyber criminals focus on the easy pickings from selling credit card data or clearing out bank accounts.

Manipulating financial markets could be much more complex. Criminals may have to use advanced phishing techniques – where very carefully crafted emails, often based on specialist knowledge, are sent to executives to elicit information, or ask them to click on links or downloads – or advanced malware, which is especially designed to get into customised software.

> 'Trading and data services are incentivised to be cheaper or faster, but not necessarily more secure'

Once an attack has been carried out, however, it could be very hard to track down the culprits, Mr Borg says. It is relatively easy to hide one's identity in a busy marketplace and even if someone is accused of, for example, shorting a stock based on the knowledge gained during an attack, they could shrug it off as taking a gamble on a rumour they heard. "It is very, very hard to prosecute anyone for this kind of crime," he says.

Marc Maiffret, chief technology officer for Beyond Trust, a security and compliance management company, agrees with Mr Borg that markets will receive more attention from cyber criminals as straightforward stealing of data becomes less lucrative.

He added that as companies put in better measures to protect against credit card fraud, such as two-factor authentication with online banking, using hardware devices or phones to generate codes, or the introduction of chip-and-pin in the US, cyber criminals in eastern Europe, China and even across the US will begin to dabble in market manipulation.

Derek Manky, who heads the research arm of Fortinet, a US cyber security company, says he has already seen evidence of an infection that scanned thousands of his clients' machines searching for trading accounts. The bug was designed to issue automatic trading instructions if it had succeeded in taking over the accounts.

"It is not happening on a regular basis, but we're seeing indications that the technology is being developed to enable criminals to manipulate the market," he said.

Gary Owen, a director at Promontory, a consulting firm, used to run the threat management centre at Goldman Sachs. He says that while big banks tend to run sophisticated security operations, those lower down the food chain often have to rely on third-party vendors, and this could pose a threat to the financial system.

"More pressure needs to be put on specific vendors who are systemically important to a subset of the community because they provide services for tier-two or tier-three clients," he said.

"Trading and data services tend to be incentivised to be cheaper or faster, but not necessarily more secure."

Mr Owen says criminals could distort data to siphon off cash. "What if one in 10 trades is corrupted somehow, but you can't see it? Instead of 10 shares, it's 11, instead of $9, it's $8.50?" The integrity of the data available in the market is paramount, he adds, as without trust the system could fall apart.

Electronic challenge Regulatory changes and old IT systems add to sector's woes, says *Daniel Schäfer*

Digital erosion threatens investment banks' business

The way we lived then: many banks have computer systems that date from the 1970s – Getty

Yet another threat to investment banks' business models looms on the horizon. While having to cope with a host of stricter rules, a tougher capital regime and a sharp drop in revenues, trading firms also face an uphill struggle to transform themselves into technology companies.

The digital challenge has hit investment banks in several ways. More and more trading is moving into the electronic realm, inefficient back office IT systems need urgent reform, and multiple trading platforms have to be unified. At the same time, competition from IT-focused niche players is increasing.

Executives, distracted by all the other serious problems in their industry, have had little scope to come up with a proactive IT agenda.

Bob Gach, global managing director of Accenture's capital markets practice, says: "The industry has been slow and inconsistent in adopting digital technologies, particularly because the larger investment banks have been focused on other huge issues, such as regulatory changes, conduct, litigation and cost-cutting. Such issues are eating up all the IT budget, so there is little room left for disruptive technologies."

Yet there is a sense of urgency among executive boards, as they realise that trading houses will in future primarily be technology firms. The top executive of a large European bank says: "We should have revolutionised the way we approach our clients. But instead, we have not moved anything like as rapidly as other industries. Banks have fallen behind."

One of the most pressing issues is to tackle the bloated technology infrastructure built up in the boom years. Regulatory demands on conduct monitoring and risk management is inflating IT costs at a time when return on equity languishes at an average 11 per cent, says the Boston Consulting Group.

Market leaders, such as JPMorgan and Deutsche Bank, spend billions of dollars on technology each year and most of them have moved some IT centres to low-cost countries and slashed staff numbers. But this has not been enough to contain costs. Global bank IT spending grew more than 4 per cent to $188bn this year alone, according to Celent, a research firm.

Consultants say the sector needs a radical approach to rid itself of a legacy where each business unit has its own IT department, trading platforms and back office infrastructure. Advisors say investment banks need to move on from such a "mushroom strategy" to create centralised IT departments.

Ultimately, this will mean going from a cobweb of dozens or more trading platforms to a unified solution. Consultants at McKinsey said in a report last year: "The end-game may see firms merging [fixed income, currencies and commodities] and equities franchises to create execution factories."

Investment banks outside the top five have already outsourced crucial parts of their trading infrastructure. UBS this year struck two deals to replace its patchwork of multiple trading platforms with standardised solutions from Murex and Ion Trading, while France's Société Générale last year outsourced its post-trade processing to a partnership between Accenture and Broadridge.

Nonetheless, larger banks retain technologies they have developed in-house, while initiatives to share costs between rivals through joint ventures, partnerships and open-source projects have mostly failed.

'Where trading is technology-dominated, the heads of businesses better be tech guys'

Senior bankers say top tier banks need to become technology leaders rather than merely cutting costs. One area where this is clearly visible is in the trading of fixed income and currencies, which is rapidly becoming more like equities trading, where transactions are executed electronically for a fee instead of banks acting as market makers and charging a spread for the risks they take.

"If the bid/offer spread is zero, you have to find other ways to make money," says Colin Fan, co-head of Deutsche Bank's investment bank. "So you have to be more tech-focused than ever before. Where trading is dominated by technology, the heads of businesses better also be tech guys."

In foreign exchange trading, a cocktail of regulatory investigations into alleged market rigging, mixed with a decline in revenues, has this year prompted a shakeout among once-powerful foreign exchange voice traders – who work over the phone and execute deals personally – while electronic trading heads become a dominant force.

"The head of etrading used to be a token position, but now is a force to be reckoned with," says Sassan Danesh, managing partner at Etrading Software, a consultancy group.

Trading automation is also a competitive threat for investment banks. "The electronification of trading will make it easier for technology firms to step into the business," Mr Fan warns.

The digital revolution means that longstanding barriers to entry have crumbled. The need for a large balance sheet has waned; the advent of the agency model brings more price transparency; and online trading platforms have opened more sales channels.

So far, investment banks have held their own. "There are lots of upstarts and disruptive technology firms in various areas of investment banking," Accenture's Mr Gach says. "But they are mostly very small and on the fringes. What we haven't seen yet is the Walmart of investment banking that completely changes the model."

Lenders struggle to engage with customers

Social media

Institutions are making huge efforts to bolster digital offerings for their clients, writes *Sharlene Goff*

When TSB, a UK bank, suffered a serious systems failure this year, its chief executive took to Twitter to apologise to customers unable to withdraw cash or make payments.

Conscious of how damaging a highly publicised outage could be just months after TSB's launch as a standalone bank, Paul Pester used the site to explain the causes of the crash and provide progress updates, often with tweets to individual customers.

His efforts, which were generally applauded, illustrate how banks are connecting with their customers in an era in which the once-a-week branch visit seems to have vanished.

Other banks' attempts to use social media channels have not been greeted so warmly.

JPMorgan Chase, the US lender, was last year forced to cancel a live question-and-answer session on Twitter after it suffered criticism over the bank's practices alongside tough questions from disgruntled customers such as: "When can I get my house back?"

Recent research shows that many lenders are struggling to connect with customers in a useful way through sites such as Twitter and Facebook. A survey from US consultancy Carlisle & Gallagher, for example, showed 87 per cent of bank customers found lenders' use of social media "annoying, boring or unhelpful".

Meanwhile, Capgemini's World Retail Banking Report 2014 found that, while almost nine out of 10 bank customers had social media accounts, and 10 per cent used them weekly to interact with banks, few lenders had clear plans for social media.

Analysts say the risk is that these sites will become not much more than public platforms for customers to air complaints about banks. They say lenders are having more success in engaging customers via other channels, such as video conferences and text messages. In the UK, Lloyds Banking Group, the government-backed lender, is trialling a scheme that allows customers to talk to an adviser via video if one is not available in their branch. Meanwhile, Royal Bank of Scotland sends 200,000 texts a day warning customers who are about to exceed their overdraft limit or incur account charges. Spain's Caixabank has devised a mobile application that lets private banking customers interact with wealth managers via video calls.

These moves are part of banks' efforts to bolster their digital offering as they face an onslaught from new competitors such as peer-to-peer lenders, technology firms and supermarkets.

Some peer-to-peer lenders – which enable individuals and small businesses to lend directly to each other – are already using the information available on social media sites to underwrite loans, according to one of the banks.

Meanwhile UK retailers such as Tesco and Marks and Spencer use innovative ways to reward customer loyalty that traditional banks are yet to employ.

Tesco, for example, offers its current account holders points for its Clubcard loyalty scheme when they use their debit card. The points are turned into vouchers to use in its stores or elsewhere.

87 per cent of customers found lenders' use of social media 'annoying or boring'

However, big banks – whose digital progress has been hampered in recent years by dysfunctional IT systems – are starting to catch up.

While about half of financial services organisations' IT budgets is spent on maintaining existing systems, according to Fujitsu, an IT services provider, 28 per cent is now invested in "innovation".

"Innovation, which typically took a back seat during the recent economic difficulties, is now receiving much warranted attention," says the group.

Analysts say one opportunity for the banks is to use the information they have on customers to connect with them in a more personal way. Syniverse – a technology firm that works with some of the world's largest banks and retailers – says smartphones present an opportunity for lenders to extract valuable information about customers' whereabouts, demographics and tastes. This could be used to provide tailored financial service, such as on-the-spot insurance to customers when they arrive at a holiday destination, as well as offers for their preferred shops and restaurants.

Computer error: TSB suffered a huge systems failure this year

Syniverse has teamed up with MasterCard to trial technology that links a person's credit or debit card with the location of their mobile, making sure both are in the same place. If the card and the mobile are not in the same location, transactions could be blocked.

Some banks are looking at customising text messages to customers' behaviour. So, for example, if a customer tends to check their bank balance every Monday morning, the bank could automatically send a message with that information.

One risk for banks is falling foul of regulatory requirements when they use social media, particularly to promote financial products. The UK's Financial Conduct Authority last month set out guidelines for social media use, stating that every individual communication – be it a single tweet, Facebook post or web page – must comply with their rules and be "fair, clear and not misleading".

This presents difficulties regarding risk warnings on Twitter, for example, which limits banks and other users to 140 characters. With the regulator alive to social media use, analysts say lenders must take extra precautions to ensure their attempts to go digital do not lead to the next mis-selling scandal.

Nimble groups move into established financial institutions' territory

Start-ups

Some older banking groups have decided the best response is to work with newer tech companies, reports *Murad Ahmed*

Seven years ago, Taavet Hinrikus, the first employee of Skype, moved to London from the free internet telephony company's base in Estonia. However, he faced a problem. Every time he transferred money to his UK bank he incurred charges of 5 per cent per transaction.

Kristo Käärmann, a fellow Estonian living in London, had the opposite problem. He wanted to transfer local currency home but he was paid in pounds. In the end, the pair struck up an informal deal. Mr Hinrikus would transfer cash from his Estonian account to Mr Käärmann's Estonian bank account. Mr Käärmann would move money from his UK account to Mr Hinrikus.

As the money did not cross national borders, they did not trigger a bank's international transfer charges, saving them some £10,000 over the two years the arrangement lasted.

Their experience prompted them to found TransferWise, a "peer-to-peer" money transfer system that lets individuals and businesses send money between countries, charging a small fee for each transfer.

Since launching in 2011, the company has raised $33m from investors including Richard Branson and Index Ventures, a venture capital firm. In June, the company said it had processed payments worth more than £1bn.

This example is part of a wave of financial technology start-ups that are nibbling at the fringes of banks' business model, the undervalued parts of a financial institution's operations that are inefficient or that can be undercut.

"Banks are relying on the old interbank system for making international payments," said Mr Hinrikus. "They don't have any incentives to innovate.

"For banks, the service is a convenient cash cow . . . If you think about it, making international payments is really no different from sending an international email. It would be absurd if an international email cost 5 cents a letter."

Investors are pumping cash into fledgling "fintech" companies. According to Accenture, global investment in financial technology ventures has risen from under $930m in 2008 to $2.97bn in 2013.

Fintech groups say their advantage over banks is an ability to concentrate on a small market sector and their better understanding of how to use technology to their advantage.

Hiroki Takeuchi is founder and chief executive of GoCardless, a London-based enterprise that allows small businesses and individual entrepreneurs to set up direct debit payments from customers, targeting groups that have difficulties setting up recurring payments.

"Banks do lots of things at once," he says. "Fintech companies take one area and laser-focus on it. Banks can't do that.

"We also see ourselves as a tech company. We've hired loads of engineers who will build robust new technologies. Banks, by contrast, typically use fairly old technologies, building systems by hiring consultancies."

Some banks are attempting to head off the threat. Barclays launched the Pingit mobile app two years ago, allowing customers from any UK bank to send money to another person using only a phone number. The Payments Council, the UK industry group responsible for payment mechanisms, has launched a similar mobile system called Paym.

Barclays, MasterCard, Rabobank and Lloyds are among older financial groups attempting to turn into investors, helping to fund "accelerators" – environments for would-be entrepreneurs who exchange equity in their fledgling enterprises for cash, mentorship and office space.

Others have partnered with fintech companies, believing it may be better to collaborate than be to compete.

In June, Santander announced a deal so customers it cannot serve may use Funding Circle, a UK peer-to-peer lender specialising in corporate loans.

In return, Funding Circle, which has lent some £290m to 5,000 businesses since it began trading in 2010, will promote Santander's current account and cash management services.

"It will by no means be our last partnership," says Samir Desai, chief executive of Funding Circle.

In the US, San Francisco-based Union Bank announced a similar deal to sell some personal loans via Lending Club, an online marketplace.

Mr Desai says that, although fintech companies are taking a bite out of banks' revenue streams, they are also helping expand the financial services sector.

He says about a third of his customers have told him they would not have been able to raise finance without Funding Circle, so creating customers outside the orbit of traditional banking.

Though fintech companies expect to work with banks, their efforts will lead to a more fragmented financial services marketplace.

Mr Hinrikus comments: "We may see that a one-size-fits-all universal bank no longer works."

Readers' views

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The focus moves from speed to safety

High-frequency trading Companies are finding they need to demonstrate excellence in all departments in order to thrive, say *Nicole Bullock* and *Philip Stafford*

Catch me if you can: is the race to be able to trade at ever-faster rates over? – Bloomberg

More than 150 years ago, Paul Julius Reuter, founder of what is now the Thomson Reuters news agency, used carrier pigeons to transmit news and stock information speedily and gain a competitive advantage.

The beat of wings has now given way to the flash of light down fibre-optic cables. But speed remains the name of the game.

In modern markets, a group known as high-frequency traders relies on the transfer of data in microseconds to dart across markets and trade at lightning speeds. They make their money by earning very small amounts on a huge number of trades.

Minimising "latency", a term used to describe the delay it takes before a trade to be executed, has been an industry preoccupation for much of the past five years.

Potentially, any physical factor can affect the speed of a trade, from the hardware used to the distance the signal has to travel.

In an effort to be fastest, high-frequency traders have been exploring ever more ambitious ideas, such as using microwaves and even weather balloons to transmit data. But is the race for speed reaching its limits?

Kevin McPartland, head of research for market structure and technology at Greenwich Associates, a financial services company, says: "Certainly, there are a handful of people out there who continue to look for microseconds. For the broader market, we have almost hit the threshold. To get beyond where we are comes down to amazing innovations in technology."

It also means higher costs. Dwindling interest in eking out a microsecond more than competitors on routes between big financial centres such as New York and Chicago has come as profits for high-frequency traders have been squeezed by market conditions.

The optimal environment for high-frequency trading is one of extreme volatility and large volumes: 2008 was a boom time. But the post-crisis period has been one of increasingly low volatility and small volumes.

Regulatory scrutiny is also raising costs for all financial groups. The publication of Michael Lewis's book *Flash Boys: A Wall Street Revolt*, which placed high-frequency trading at the centre of a modern market structure that the author slammed as "rigged", has only intensified the focus. To remain competitive, high-frequency traders will always need to worry about latency, but there are notable shifts in how they are seeking – and investing – to gain an edge.

"Speed continues to be important, but it is just one of many factors," says one executive. "Markets are extremely competitive, so you need to be excellent in all aspects of your business to be successful. The means not just fast but smart in your decision-making and in how you manage costs."

> 'Firms are happy in the fast lane, but if a car passes, they have to go with it'

Being smarter in decision-making requires a whole set of skills beyond parsing software code and hardware.

Thomas Burrell of Chicago-based Objective Paradigm, a recruiter for high-frequency trading firms, says there has been increasing demand for people who specialise in risk management and quantitative trading strategies, and "big data types" who can undertake analysis that predicts trading patterns.

Ari Rubenstein, co-founder and chief executive officer of Global Trading Systems, a market maker and high frequency trader, says his company is working on ways to store and quickly access the "oceans" of financial data created by electronic trading.

This, he says, is important now that there are more risk and compliance checks on every order. Vigorous competition among such firms creates an enormous amount of electronic order flow.

"Speed is important, it gets you in the game, but responsible risk and compliance management allow you to win," he says. "What makes a Porsche great, for example, is the brakes and handling, not the unbridled speed."

For Chris Concannon, president and chief operating officer of Virtu Financial, it is about looking at the whole life cycle of the order.

"You cannot ignore any single stop on that life cycle," he says. "That is not new, but there has been a refocusing of resources in terms of where to find ways to reduce speeds. A lot of time is being burned on the consumption of the data and what to do in response to that data. While you care about whether information is received in a timely manner, you also need to focus on how quickly you can respond to it."

Latency cannot be ignored, no matter how far it has progressed. Some routes are saturated, others are inefficient, and companies will always need to worry about rivals finding faster pathways.

Jock Percy, chief executive of Perseus Telecom, a US trading technology company, says: "Firms are happy being in the fast lane, but if a car pulls out and passes, they have to go with it."

He adds: "A lot of market participants do not want to make that move, but if the trading opportunity is there, someone inevitably will."

Tech upstarts plan to eat banks' lunch

continued from page 1

billions of pounds on IT each year. State-backed Royal Bank of Scotland and Lloyds seem to face the biggest IT problems. They say they invest about £2bn a year.

The Financial Conduct Authority, the Prudential Regulation Authority and the Bank of England are conducting a joint review into the resilience of lenders' systems and how bank boards are dealing with the risks of failures.

The review, which is expected to take about a year, follows a number of high-profile glitches, including a shutdown at RBS in 2012 that meant millions of customers could not access their accounts for weeks.

After the outage, RBS admitted it had underinvested in its IT systems and said it would spend an additional £450m over the next three years. Technical glitches can be very damaging for banks' reputations. Even news of a small failure that lasts only minutes can be spread quickly to millions of people via social media.

Figures from Celent, the research company, show that less than a quarter of the $180bn that banks spent on IT last year was for new investment – the rest was devoted to maintaining existing systems. Asian banks devoted the highest proportion of all IT spending to new investments at 30 per cent, followed by US banks at 24 per cent, while European banks had the lowest proportion at 13 per cent.

As the banking behemoths are weighed down by creaking legacy systems, it leaves them vulnerable to competition from high-tech upstarts.

As Antony Jenkins, Barclays chief executive, admitted in a recent speech: "We are on the leading edge of a technology revolution in financial services. We can see opportunities and threats all across our business."

Financial technology start-ups in the UK and Ireland raised more than $700m from investors between 2008 and 2013, according to research from Accenture.

The founders of these firms see banks as slow-moving and complacent. They say financial institutions have failed to understand that, while the mainstays of their businesses – such as current accounts and investment services – are not under threat, other less lucrative sectors are under attack.

One founder described the process as "death by a thousand cuts", with each fintech company taking a small slice of a bank's business, adding up to a significant proportion of its overall revenues.

However, fintech companies have slowly changed their attitudes to the banks. Whereas banks were once seen as the enemy, the fledgling groups have come to realise that the two need to work together.

For example, Samir Desai, chief executive of Funding Circle, a peer-to-peer lender, was behind a landmark partnership with Santander, the Spanish bank that has agreed to send the London-based start-up some customer leads in return for promotional work.

"Evolution has taken place," he says. "Our early messaging was anti-bank, and banks were a bit dismissive of what we're doing. There's been growing up on both sides."

Hiroki Takeuchi, chief executive of GoCardless, a UK start-up that helps small business set up direct debit payments, says: "It may end up with a situation where banks providing core business infrastructure. I don't think the current account is going away soon. But by partnering with fintech companies, banks can offer provide better services overall."

Mr Takeuchi adds: "If you believe that people will keep money in banks, fintech companies will have to go through the banks rails. You have to work within the banking system. That is frustrating.

"Even with Bitcoin, where you've got a currency outside the banking system, you need a way to load up real currency into that Bitcoin account."

Mike Ward, head of OzForex in Europe and North America, says the Australia-based online foreign exchange dealer has grown rapidly by selling currencies at cheaper prices than most banks.

The company, 51 per cent owned by Macquarie, the global investment company, handled A$13.6bn ($12.2bn) of foreign exchange transactions last year. "It's easy for us to undercut the banks," says Mr Ward. "But online forex providers have only a 5 to 10 per cent share of the market. So, we have a long runway before the banks start responding to our challenge."

Contributors

Martin Arnold
Banking editor

Murad Ahmed
European technology correspondent

Hannah Kuchler
San Francisco correspondent

Nicole Bullock
Capital markets correspondent

Philip Stafford
Trading Room editor

Maija Palmer
Social media journalist

Stephen Pritchard
Freelance technology journalist

Jessica Twentyman
Freelance technology journalist

Adam Jezard
Commissioning editor

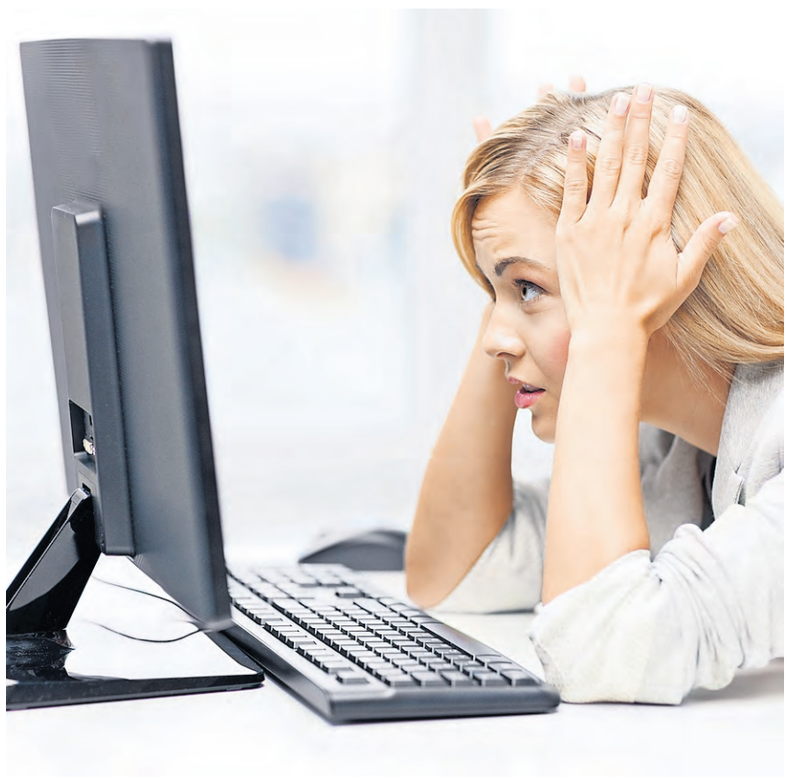
Steven Bird
Design

Andy Mears
Picture editor

For advertising details, contact:
James Aylott, tel +44 (0)20 7873 3392, email james.aylott@ft.com

Workers have to learn how to cope with the curse of the groaning inbox

Management Even senior staff can be paralysed by the deluge of emails, says *Stephen Pritchard*



Hate mail: workers can receive up to 100 electronic messages a day – Dreamstime

The growth in email use over the past decade has, it seems, been unstoppable. For example, Radicati Group, a technology market research firm based in California, says 182bn emails were sent and received each day worldwide in 2013. That figure is expected to reach 207bn by 2017.

Business remains the main source of this traffic: business users sent 100bn of those messages, Radicati says, while the average business user receives between 100 and 120 messages a day. Some, of course, receive many, many more.

Spam accounts for a large percentage of messages. According to TrendMicro, an IT security vendor, global spam volumes ranged between 93bn and 204bn messages a day in the first two weeks of this month alone (the two sets of figures fail to correspond because Radicati does not measure spam).

While software to detect and block, or at least mark, spam messages, has improved, there are other reasons for executives' groaning inboxes. Social media, lauded by some as the likely cause of the death of emails, also creates them. The main consumer social media sites, including Twitter, Facebook and Google Plus, are significant generators of electronic messages, unless users turn email notifications off.

Then there are business-focused sites such as LinkedIn, business social networks – such as Yammer, owned by Microsoft, Tibco's tibbr and Jive – and email subscriptions.

Our ability to communicate on the move also means some people hardly stop sending messages, contributing to the information overload. And too many of us fall into the "cc" culture, copying ever-larger groups of colleagues into email trails. Senior executives can fall into the trap of micromanagement by email, commenting on and forwarding messages that would be better dealt with at a more junior level.

Managing this can be a challenge, especially when email tools, and specifically mobile tools, are designed to attract attention.

"As you become more senior, you're copied in on more messages. That's the nature of things," says Anna Marie Detert, an expert in people and technology at professional services provider KPMG.

"Executives who are successful don't allow email to become a tool for instant messages, because it is not. People can be paralysed by responding to emails and more of their time is spent on email than on the planning activities they should be doing."

Dealing with email overload is a personal and cultural issue rather than a purely corporate one, experts say.

There are few general-purpose solutions other than using automated methods such as spam filtering or message archiving. The way each business, and each person, uses email is too individual for technology to solve the challenge on its own.

"Email is a symptom, not the root cause," says Mark Tonsetic, managing director for IT at CEB, the business advisory company. "The cause is information overload."

This, Mr Tonsetic says, touches on broader questions of how companies manage information and collaboration, but it also suggests they are not making best use of the tools they have. For example, companies could encourage the use of clear subject lines, limit the number of people copied on messages, or even the number of messages on a topic.

"You should have one email per topic," advises John Mancini, president of information management body, the Association for Information and Image Management. "Email should not be a laundry list. And you need aggressive discipline about who is copied on messages."

One organisation Mr Tonsetic worked with had a rule that, after three email exchanges on a single topic, executives had to call or see the person instead. "You need to have a conversation at that point," he says. "Email is not the tool for resolving a complex dialogue."

Individuals can do more to manage their email better. Microsoft's Outlook, the most used email application, has powerful tools for managing messages, such as labelling, categorisation, and the ability to view emails as conversation threads.

Google has put more message management features into its Gmail software. On the mobile side, there are apps such as Mailbox, designed to make email easier to handle.

So far, however, such tools do not transfer well between platforms, which limits their usefulness for executives who need to look at email on a PC, on the web and on a mobile device.

While employees need to be encouraged to use those tools, they must also not let email dominate their working day, says Larry Cannell, a research director at IT analysts Gartner.

One technique is to set aside specific times of day to deal with email – and turn off devices outside those times.

"One thing I've let go of is the number of unread messages in my inbox," says Mr Cannell. "There are people who want 'inbox zero' but I never look at the number. A lot of messages can be dealt with from the subject line alone."

COMMENT

INSIDE TECH

Maija Palmer

Behind the bland phrase lies the chilling reality of 'kinetic action'

Frightening ideas often hide behind bland phrases – take "collateral damage" or "negative patient outcome". Similarly chilling is the statement "we would consider a kinetic response to a cyber attack", words bandied about at the FT Cyber Security Summit, held earlier this month, by tech experts discussing Nato's changing defence policy.

Let's be clear, "kinetic" means bullets and bombs. In plain English: "if you hack us, we might bomb you".

This becomes more alarming with Nato designating cyber attacks as events that could trigger Article 5 of the Washington Treaty, which states that an attack on one member is considered an attack on all and calls on Nato signatories to come to its aid. In other words: "Hack one Nato member and potentially get bombed by all (or, in practice, by the US)."

"I can't believe no one seems more alarmed about this," said one man at the summit. "Shouldn't we all be shouting about this?" He had only been working in cyber security for two weeks. Everyone else was used to the idea: the US announced in 2011 it was prepared to go "kinetic" when hacked.

Nevertheless, the prospect of Nato countries responding to electronic attacks with conventional weapons should give us pause. What kind of attack would be bad enough to trigger retaliatory bombing, especially in an era of "hybrid warfare"?

Nato is leaving this ambiguous. Drawing an explicit line in the sand might invite people to test it.

Presumably, it would be something crippling, such as the shutdown of a national power grid, rather than stealing naked photos of Jennifer Lawrence. But what about attacks somewhere in between? In 2007 Estonia's banks, media outlets and ministries were disrupted by cyber attacks believed to have come from Russia, but no one died. Would this act have warranted a "kinetic" response?

Even if Nato countries can decide when to act, how sure will they be they are bombing the right people? Hackers hide their tracks well, routing attacks through a number of countries, legitimate businesses and organisations. Attacks are often carried out by groups at arm's length from the government, which can claim to be independent actors.

It is easy to sow doubt over the issue. Although the attacks on Estonia almost certainly originated in Russia, the Russian government has always claimed they were the work of "patriotic" independent citizens.

It is difficult to prove who shot down Malaysia Airlines flight MH17 over Ukraine. It would be even harder to prove who was behind a cyber assault that appeared to come from a dry cleaners in Toronto.

This is why governments and security agencies are worried about the soft underbelly of the small-business sector, internet-connected but not hugely inclined to spend money on antivirus software and firewalls.

The UK, for example, is running the catchy awareness campaign "Ten steps to cyber security", but it is hard to see this bringing about rapid change.

What might capture SME bosses' attention is to imagine returning from lunch one day to find a military drone shooting at their company's virus-infected server. With pledges to "go kinetic" over cyber threats, this is starting to sound not so far-fetched.

This article appeared earlier this month on FT.com/connectedbusiness

Social networks are one answer to information overload at work

Workplace

Some companies have found they can function better without internal emails, writes *Jessica Twentyman*

Staff email ban: Compton Green

In 2011, Thierry Breton, chief executive at Atos, the information technology services provider, set an ambitious goal for his staff: to give up internal email for good by the end of 2013.

Critics said his efforts were doomed to fail – and, to a certain extent, they were right. Atos did not manage to eliminate internal email by the end of last year. But it did cut volumes by 60 per cent.

More importantly, the "zero email" initiative has got the company's 76,000-plus employees working together in more effective ways, according to a June 2014 report on the project by Anthony Bradley and Samantha Searle, analysts at Gartner, the IT market research firm.

Overcoming big barriers to change sometimes requires drastic actions, they say. Despite the Atos campaign's controversial name, eliminating internal email was never the real goal. That, say Mr Bradley and Ms Searle, was to "move collaboration activities out of email and into a more suitable environment".

In that sense, "zero email" has been a resounding success. As well as the reduction in internal email traffic, Atos now has more than 74,000 staff registered on the social networking platform it owns, blueKiwi. Every month, they create around 300,000 posts on the internal site and view almost 2m pages.

But why does this represent an improvement – and what is the big problem with email, anyway?

According to analysts at strategy house McKinsey, it is partly a matter of productivity. In a 2012 research study, they found that the average "knowledge worker" spends an estimated 28 per cent of the working week reading and responding to email and almost 20 per cent searching for internal information or tracking down colleagues who can help with specific tasks.

"But when companies use social media internally, messages become content; a searchable record of knowledge can reduce – by as much as 35 per cent – the time employees spend searching for company information," the McKinsey researchers write.

Time spent dealing with email, they add, is typically slashed by between 25 and 30 per cent.

There are other problems, too, says Nikos Drakos, a Gartner analyst. "From a worker's perspective, email is probably still the best mechanism for focused conversations between small groups of participants working together towards a specific goal," he says. "But from an organisation's perspective, a great deal of valuable knowledge and content can get hidden or buried in individual email accounts and may be lost forever when an employee leaves the company."

Nor does email do a good job of prioritising issues or allocating tasks, says Mr Drakos, when forwarded and "carbon-copied" messages bounce backwards and forwards between large groups of employees.

This can lead to chaos, says Adrian Butera, director of Compton Green, a real estate company based in Melbourne, Australia: "For us, email had become too busy, too distracting. There was too much clutter, too many 'reply alls'. But the worst thing for me was that we were sometimes missing customer emails among all the internal ones."

Radical action was called for, he says. This involved a blanket ban on internal emails and the rollout of an enterprise social network, based on the tibbr platform from Tibco Software.

That, Mr Butera decided, would enable Compton Green's sales associates out in the field to work together more effectively on the marketing and sale of properties.

Persuading Compton Green's staff of the benefits of this approach was not as difficult as Mr Butera had feared.

"The average age of employee in our firm is 30 and there was an instant understanding and appreciation of the idea of a 'Facebook for work'," Mr Butera says.

Today, some eight months after the internal social network went live, anyone who is even tempted to revert to internal email to contact a colleague can expect a backlash.

"It's quite funny," says Mr Butera. "You see an immediate response from recipients: 'I'm not reading this. You need to tibbr it'."

At Archant, a UK-based publishing house, meanwhile, employees have taken the lead in setting up groups on the company's four-year-old Connect social network, says Chris Thompson, the company's head of development. This is based on the Socialcast platform from VMware.

Archant's accounts department, for example, used email for many years to make sure that regional sales executives were chasing outstanding payments from their clients. Now, there is an accounts payable group on the Connect network, where details of outstanding payments are posted.

"It's not supposed to be a name-and-shame exercise," says Mr Thompson, "but having a product code up there and the name of the person responsible for that code is an incentive [for them] to make sure that money comes in on time."

There are also travel groups, where Archant employees can post reviews of places where they have stayed or eaten on work trips, and a popular photography group, where keen amateur snappers can share their latest images.

Another group focuses specifically on Archant's content management system, providing a repository of information, advice and documentation for those using the publishing tool in their day-to-day work.

"All in all, it's more effective than email for the whole company to share important messages with each other, whether those are work-related or more social in nature," says Mr Thompson.

"And because employees have found their own uses for the platform, they get better value from it, too."