

# Financial **IT**

## Innovations in Technology

**Nelson Holzner,**  
CEO, AEVI

# AEVI: EMPOWERING MERCHANTS AND BANKS

**PREVENTING  
FRAUD IN THE OPEN  
BANKING ERA**

**Omri Kletter,**  
Head of Fraud &  
Authentications Solutions,  
NICE Actimize EMEA

**THE RTS MANIFESTO:  
WHAT IS IT ALL  
ABOUT?**

**Simon Black**  
CEO, PPRO Group  
**Ralf Ohlhausen,**  
Business Development  
Director, PPRO Group

**HOW TO BUILD A BETTER  
PAYMENTS PLATFORM FOR LONG  
TERM COMMERCIAL SUCCESS**

**Darren Busby,**  
Associate Vice President & Business  
Development Director for Europe  
at Compass Plus

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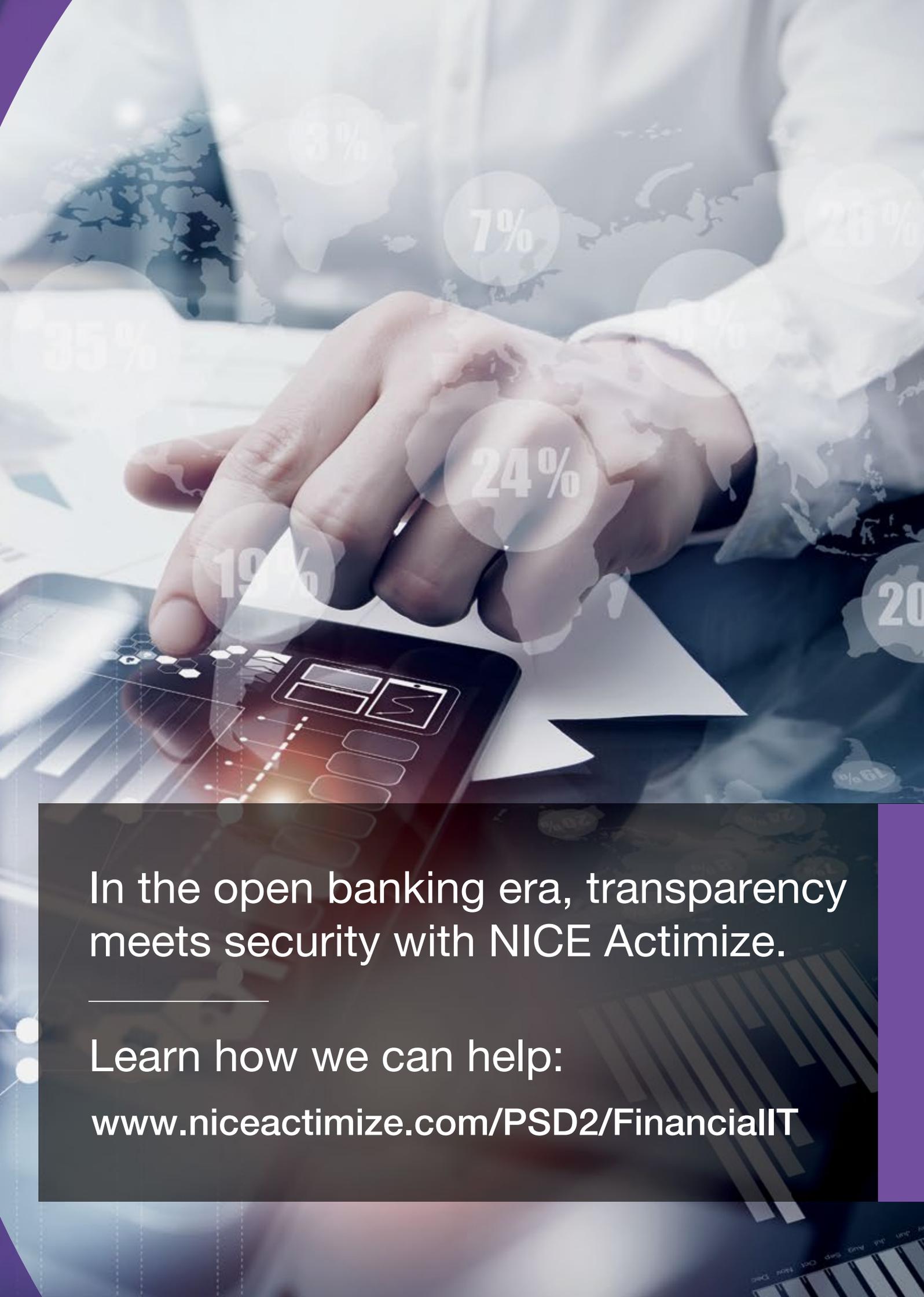
# PSD2

requires banks to enable customers to actively connect third party service to their bank accounts.

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A person's hands are shown typing on a laptop keyboard. The background is a blurred world map with several semi-transparent circular overlays containing percentages: 3%, 7%, 28%, 35%, 19%, 24%, 20%, and 15%. The overall theme is global finance and data.

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# SPECIAL MONEY 20/20 EUROPE ISSUE

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# BLURRING BOUNDARIES AND BUILDING TRUST



**Andrew Hutchings,**  
Editor-in-Chief

Most of the organizations that take part in the Money 20/20 Europe event, which takes place in Copenhagen at the end of June 2017 can loosely be defined as financial institutions or FinTechs. However, the scope of the conference goes way beyond the financial sector.

As the conference organizers note on their website, it is not a financial revolution that is underway, nor a technology revolution that is underway, but something much more fundamental: a commerce revolution.

The organisers of Money 20/20 Europe have correctly sought to include the widest possible variety of stakeholders: financial institutions, providers of payments and other financial services, investors, consulting firms, government bodies, data/marketing services providers, retailers (be they operating online or in the traditional manner), and the mobile e-commerce (m-commerce) ecosystem.

In short, the issues that are being dealt with by the stakeholders have an impact on global commerce, global trade and the global economy. Even if they did nothing else, the organisers deserve congratulations for providing a user-friendly forum for all the stakeholders.

In the previous edition of Financial IT, we highlighted how it is not easy or helpful to be categorical about the main area(s) of interest of any given FinTech firm. There are large overlaps between the various areas of FinTech as we would see them here at Financial IT. For instance, Artificial Intelligence (AI) is often a key element of mobile banking solutions, while Blockchain often plays a key role in security/KYC solutions, and so on.

The Money 20/20 Europe event highlights how it is not easy or helpful about where financial services ends and where commerce generally begins.

As usual, the articles in this edition of Financial IT appear at first glance to be eclectic. Some focus on the implications of the European Union's Second Payments Services Directive (PSD2). Others look at specific topics such as cybersecurity, while others emphasise collaboration between FinTechs and financial institutions.

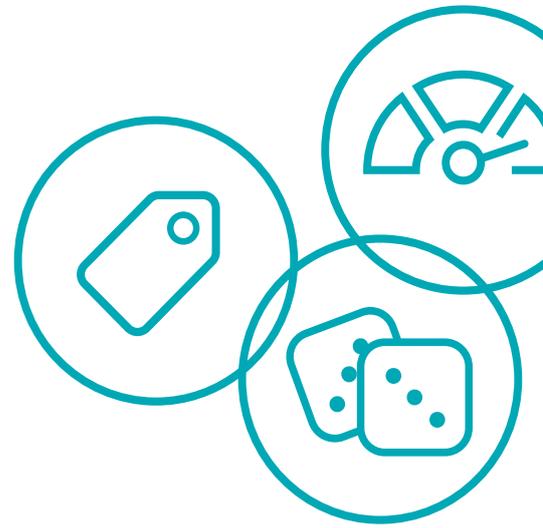
The thread that runs through all of the articles is the need for all stakeholders in the commerce revolution to work together to build trust. Money can only function as a unit of account, a medium of exchange and as a store of (deferred) value if the organization or government that is issuing it is trusted. As PSD2 has recognised, commerce will flourish only if consumers genuinely feel that they are getting a good deal from the FinTechs and institutions that are handling the consumers' payments. Building cybersecurity is essential if the commerce revolution is to flourish and provide positive outcomes for all.

Of course, the innovative companies that ensure the delivery of positive outcomes may well be companies that are currently new and, by any standard, small. In this edition of Financial IT, we revisit our 2016/2017 Pathfinder Ranking. Over time, we will be looking to produce a definitive ranking of the 50 most promising new FinTech companies. Nominations have been sought from Financial IT's community of readers and subscribers.

In short, we hope very much that we can contribute to the dialogue and debate that will shape the landmark Money 20/20 event in Copenhagen.

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# PREVENTING FRAUD IN THE OPEN BANKING ERA

With the European market moving at a rapid pace toward Open Banking, is this a world of opportunity or a cause for concern?

The European Central Bank's PSD2 (Revised Payment Service Directive) regulation, mandates the opening of the payments infrastructure to allow Third Party Payment Providers, or TPPs, to access banks' core banking platforms. PSD2 enforces competition in payments, allowing consumers and businesses to execute payments and other services via these mediators, but at the same time it also demands safety in providing such innovative services. The major concern is that Open Banking may very well open the gate for new variants of fraud at the same time.

## The race to tomorrow – is the future of banking in open APIs?

Banks will provide a dedicated gateway, or API (Application Programming Interface), that exposes customers' data to the mediators, allowing them to build applications that interact with a bank's data. Some believe that API-driven banking will give customers the freedom to do incredible things with their financial data, such as aggregating data from multiple cross-institution bank accounts to better manage their money.

As importantly, banks may find new business models and revenue streams in

Open Banking. In fact, some believe open banking models could eventually displace much of the traditional credit card business. Yet the prospect is also terrifying for banks as a key question looms: Will they lose the grasp on their customers? Traditional banking products could become more commoditised if consumers latch onto third party services or the use of mediators could make it harder for banks to make decisions on transactions when the view of the customer is limited.

## Fraud and authentication concerns

Working in an Open Banking environment poses a series of fraud and authentication challenges that must be tackled in order to secure this changing environment. This new era of banking will no doubt open the gate for new variants of fraud methods including:

### **Account Take-Over (ATO) fraud on digital channels, 'flavoured' by Open Banking:**

Open banking will open a world for many new TPPs and applications. As consumers get to know these new services, fraudsters will pretend to be TPPs, via rogue apps and phishing sites. Additionally there will

be TPP data breaches, and fraudsters will then use this stolen data and credentials for account takeover in the traditional channels.

### **ATO via the Open Banking channel:**

Fraudsters will use stolen credentials via the Open Banking channel, to buy goods/transfer money etc. While the TPP may be liable for such fraud, if the TPP uses the bank's authentication mechanism, the liability might shift to the bank.

### **Customer authorised fraud (a.k.a. Social Engineering):**

As with every financial service, consumers and businesses alike will be manipulated by fraudsters to make TPP transactions that appear to be valid. In Open Banking, however, things could be worse because customers will receive financial services and communications from multiple companies on top of their bank, leading to confusion and further vulnerabilities.

**First-party fraud:** As Open Banking aims to replace card services, we will see card-related fraud via this new channel (e.g. customers denying receiving the goods, loan fraud) and API Hacking: In a sophisticated scenario, fraudsters may hack the APIs and utilize them (pretending to be

## Omri Kletter

Head of Fraud & Authentications Solutions,  
NICE Actimize EMEA

Omri Kletter is responsible for managing the fraud and authentication solutions in the EMEA region for NICE Actimize.

Prior to joining NICE Actimize, he joined the Security Division of NICE where he worked as the New Technologies Product Manager and was responsible for new initiatives including the division's Cloud and Cyber Intelligence activities. Mr. Kletter began his career in Israel's elite technological intelligence army unit, where he served as the Head of the Global Counter-Terrorism section.



a true TPP, or by hacking a true TPP and sending requests on its behalf).

### Total fraud protection for the 'open channel'

Banks will be required to consider the following in order to detect and prevent fraud in an Open Banking channel:

- **Handle as a new channel while maintaining a cross channel view**

Transactions leveraging Open Banking will contain new data that didn't exist in online or mobile channels (such as TPP specific information). Likewise, some of the data used in the existing digital banking fraud solutions will be missing. As a result, FIs need fraud controls which consider Open Banking transactions as a new channel, leveraging the new data that comes with it and compensating for the "lost" data. This is true from the provisioning, account opening and authentication phases and through payments, loans and account services transactions. At the same time, banks must still maintain a customer-centric view based on activities in all channels.

- **Profile the new entities in the Open Banking environment**

In their fraud controls, FIs should carefully consider the new entities in this complex environment and relationships between these entities. Some analytics that were previously relevant when detecting card fraud will be relevant for protecting Open Banking transactions. For example, banks should profile TPPs and the relationship between Customer to TPP as well as customer's device to TPP.

- **Consider new dedicated risk indicators**

In this new landscape, with new fraud threats, fraud analytics need to identify new risk indicators based on the new entities mentioned above. For example, it can be useful to consider differently an existing TPP for a user vs. a new one, identify unusual activity from a TPP or a first activity from a rare TPP.

- **Prepare fraud operations for handling Open Banking**

With the expected surge in transactions, customer confusion and fraud, banks fraud operations team can expect a high volume of cases to investigate and handle. In order to support this overload banks need to make sure they have the tools in place for efficient investigations and quicker resolution time.

- **Be ready for higher TPS and Big Data**

Open Banking encourages competition and boosts the type of services consumers can get. We expect that transaction volume will keep growing and diversifying. FI fraud controls need to be able to deal with the new volumes, as well as variety and velocity.

### Transparency meets security

Fraud protection for Open Banking operations should allow for improved customer experience and choice, while protecting data and limiting fraud losses.

It's important to strike the right balance with a fraud prevention solution that provides a winning outcome for both the banks and the customers they serve. The good news is that today's fraud solutions employ behaviour analytics that can very quickly spot unusual patterns indicating account manipulation and takeover. Additionally, open analytics technology can allow financial institutions to easily design their own fraud detection or risk models and stay ahead of emerging fraud threats.

# THE RTS MANIFESTO: WHAT IS IT ALL ABOUT?

Interview with Simon Black and Ralf Ohlhausen of PPRO

**Financial IT:** *Simon, please introduce us to PPRO. What does the company do?*

**Simon:** I joined PPRO two years ago. Before that, I worked for Sage Pay for seven years. At the time when I worked at Sage Pay, our customers were asking for local payments, in particular for the Netherlands and Germany. We saw a boom in commerce and opportunities in cross-border e-payments. However when we looked at that from a PSP point of view, it was complicated to integrate the local payments scheme and get money back to the merchants. Sage Pay was looking for a partner and finally found PPRO. So, I have worked with PPRO as a partner for two years before joining the company as a CEO. We were 70 people then and have since grown to more than 180 employees, so we are really a fast growing business.

Founded in 2006, PPRO has a unique payments platform which is very powerful and connected to over 140 different payments methods: we use that platform to drive a number of acquiring and processing products. One other area where we are very strong at is issuing. We provide accounts to consumers and businesses as the easy way to manage their money across Europe.

In the payments part of our business we acquire and collect alternative payment methods and we do that solely for Payment Service Providers (PSPs), card acquirers, or other merchant aggregators. So we don't sell directly to merchants – we do wholesale only.

Our model works really well. Our platform provides a strategic outsourcing solution to PSPs, who are under pressure from merchants to enable cross-border e-commerce. We also support omnichannel marketing, providing gateways, enabling loyalty schemes and local payments methods in an efficient way. We

provide access to our platform through a single and simple API: there is just one integration, and the PSP can add as many payments methods as it wants. We support payments methods all over the world now – in Asia and Latin America, and not just in Europe.

On the issuing side, PPRO issues Visa and Mastercard consumer prepaid cards, under its own brand name VIABUY, and enables B2B prepaid cards, under its CROSSCARD and FLEETMONEY brand: these can be issued both physically and as virtual cards or NFC devices.

**Financial IT:** *How will PSD2 affect the payments and banking industry in a broad sense?*

**Simon:** In balance I think PSD2 is a good thing for the FinTech industry. I believe that the EU has been very progressive when it comes to innovations and that a lot of good things have happened so far.

Examples include the Shepherd initiative on harmonizing payments across 27 countries and the first PSD which, in conjunction with Shepherd, was really good. The EU has created a single European payments area and the PSD initiative is an excellent achievement.

Overall, FATCA and PSD have had a positive effect. PSD2 is taking us on the next stage. It tries to open up the payments and banking systems for the benefit of consumers – not the banks or the FinTechs – and we need to keep a focus on that.

Of course when you introduce such changes you have to be careful and there could be some unintended consequences: that's where we are now. In the draft RTS, we think there are a number of points that are not for the benefit of consumers. A number of companies in our space are telling the same story.

**Financial IT:** *What are the PSD2-related consequences for banks and FinTechs?*

**Ralf:** PSD2 widens the scope of PSD1. Specifically, some previously non-regulated payment services, in particular payment initiation and account information services, will now require a license. Furthermore, PSD2 aims to strengthen payment security and stipulates the use of strong customer authentication outside specifically defined exemptions. So, for banks and FinTechs alike, it brings more supervision and less flexibility, but also more certainty and reliability. The most talked about consequence is that all account servicing payment service providers (ASPSPs), that is to say all banks but also some FinTechs, have to provide access to their accounts to any PSD2-licensed entity.

**Financial IT:** *PPRO recently joined the coalition of now 70 companies and associations operating across all EU Member States against the current draft of the RTS under PSD2. What was the new draft about? What was the reason for the manifesto?*

**Ralf:** The latest draft RTS suggested giving banks the choice of letting PSD2-licensed Third Party Providers (TPPs) access their accounts either directly, via their existing online-banking customer user interface (front door) or indirectly, via an API at their back door.

The FinTech coalition, of which we are a member, was founded to request that this choice must be reciprocated on the FinTech side as well. In other words, TPPs can choose to use such APIs (if they are good) or not (if they are not). The automated direct access (often derogatively called screen scraping) is cumbersome, but reliable because the bank's front door is always well-maintained.

Whether banks will provide an equally broad and good service to their competitors at their back door is of course questionable. If they do, TPPs shall be very happy to use such APIs, if not, they must have the ability to continue direct access so that they can compete with the bank on a level playing field, and – very importantly – can actually continue their existing business, which relies on that direct access.

**Financial IT: What is the result of the signed manifesto? What was the reaction of the European Commission's Directorate-General (DG) for Internal Market, Industry, Entrepreneurship and SMEs and the major banks to the manifesto?**

**Ralf:** That DG, which is currently reviewing the draft RTS, listened to and understood our concerns and seems willing to ensure such a level playing field. The European Parliament had this view from the start, so we are optimistic that the necessary amendments to the RTS will be made.

Naturally, the banks are less enthusiastic about it and started a counter campaign trying to further discredit the practice of screen scraping. Since there is nothing wrong with the technology as such, they are saying that the impersonation of customers by TPPs using their credentials must end.

However, this is actually not disputed at all. To the contrary, PSD2 obliges all TPPs to identify themselves vis-à-vis the ASPSP and the main change required in the RTS is to oblige the banks to allow that identification also at their front door, so that the use of it cannot be denied to licensed TPPs.

**Financial IT: What are your overall predictions for PSD2 coming into force in January 2018?**

**Ralf:** The main thing to ensure in January 2018 is that neither banking nor FinTech services are disrupted to the detriment of consumers, and I believe this has been taken care of.

The main changes for providers and customers will arrive when the complementary RTS comes into force, which is 18 months after its agreement, or probably around Q1 2019. PSD2 will bring big changes and a lot more competition: however, as is always the case in the FinTech world, expectations will be disap-

pointed in the short term and more than met over the long term.

**Financial IT: Does PPRO have any pillar solution for banks and their customers to make the transition process to PSD2 painless?**

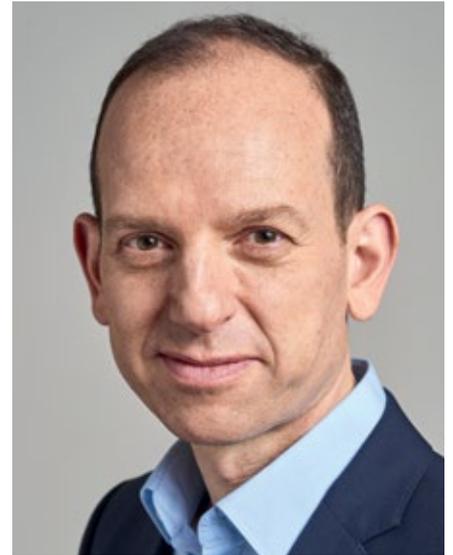
**Ralf:** PPRO provides a large portfolio of alternative (non-card) payment methods and automated real-time bank transfers have a big share in that. We already cover a good percentage of Europe's 4,000+ banks allowing TPPs to access and initiate consumer payments from there. With PSD2 this can be expanded to all the other banks, meaning those that are currently not offering their customers the possibility to pay directly from their bank account without using cards or PayPal or any other intermediary payment instrument.

**Financial IT: What other changes do you observe in the payments field today? How those changes can help to bring a seamless customer journey to the market?**

**Ralf:** The biggest trend I see is a move towards invisible payments. Technology improvements will provide more and more context and behavior-based risk mitigation, so that customers will have to be less and less bothered with passwords and fingerprints, etc. This is actually one of the biggest concerns I have around PSD2, because it is skewed towards customer-provided strong authentication. So whilst the rest of the world moves from 1-click to 0-click payments, we risk moving back towards 2- and more-click payments, burdening the consumer with additional security measures: rather, we should be allowing the merchants to take the liability and mitigate their risk with the increasingly sophisticated technology that is available.

**Financial IT: PPRO is attending Money 20/20 this year. What are you planning to showcase at the event?**

**Simon:** We are showcasing a number of innovations. We are adding payments in Asia into our platform and we have a number of value-added services that we can offer to PSPs, such as the automated merchant services. We are also launching the first edition of our Payments Almanac, comprehensive study of payments methods around the world ever produced.



**Simon Black**  
CEO, PPRO Group



**Ralf Ohlhausen**  
Business Development Director, PPRO Group



# AEVI: EMPOWERING MERCHANTS AND BANKS

An interview with Nelson Holzner, CEO

**Financial IT: Tell us about AEVI.**

**Nelson Holzner:** AEVI's proposition is to build an open and secure ecosystem for transactions. It seeks to add value and enhance services at the point of sale for both merchants and consumers – through an innovative white-label B2B marketplace containing high quality B2B apps. This business accounts for the lion's share of our annual revenue, which is around EUR80 million.

We approach merchants, such as retailers, hotels or restaurants, through their banks. Our solution enables the merchant acquirers / banks to provide an online marketplace under their own brand. We never go directly to the merchants themselves. We go to the merchants' banks. We bring the merchant banks closer to their customers and the merchants closer to their consumers. This is one of AEVI's key competitive advantages.

This is only a part of our business. We also offer a secure cross-border transactions platform which works across multiple existing transaction channels. We eliminate the complexity of various gateways, service providers and acquirers for internationally oriented customers. For example, banks who serve merchants that run operations in 40 different countries will face complexities with local partners, reconciling numbers, reporting and so on. Our solution is centralized, cloud-based and scalable. We processed 1.2 billion transactions last year.

Our focus is on Europe and America. However, the biggest client that uses our marketplace is the Commonwealth Bank of Australia (CBA) which is one of the country's 'big four' universal banking groups. CBA has been using our technology for the past two years and has rolled the solution out across their merchant base.

This is the best case study. In terms of hardware, we supply smart Android-based tablets – some 100,000 and rising – which provide merchants with the apps that they

need. Known as Albert, the tablet takes secure cashless payments in any currency, with any card or with any mobile device. It complies with PCI standards and is EMV ready.

Another good example of our solution in action is in hospitality. We have an app that lets customers split the bill and separately pay for the meal. We enable customers to finish and pay for their dinner, book a cab or order and pay for their cinema ticket on the same device. Together with the wide array of apps available, the potential for our marketplace is endless.

**Financial IT: How long does it take you to on-board a new client – a bank that is working with merchants?**

**Nelson Holzner:** If we are talking about big banks, it takes couple of months. Starting from showcasing the product, we then negotiate the terms through technical integration and setting up the marketplace per the needs of the bank or acquirer. Once the integration is done, it takes minutes rather than hours to set up the infrastructure for new merchants using the marketplace. The beauty of the platform that it's cloud-based: you can manage all devices centrally. Also, the apps downloading process is very fast. Once it's all in place it's very quick and easy to use.

**Financial IT: What have been the key trends and themes for you over the last year or so? And the coming year?**

**Nelson Holzner:** Over the last few months, we have been focusing on finding new partners and clients for our marketplace proposition. We have also been busy cross-selling our various products to existing customers.

In Europe, the key issue is, of course, PSD2. It remains to be seen which players are best prepared for the new order. Personally, I think PSD2 brings a lot of opportunities for new players to get access

to data that has previously been the property of banks only. That means that many new and interesting business models are possible.

**Financial IT: Taking into account your significant experience in payments (Billpay, Cerberus Capital Management) and your new job role, what plans do you have for AEVI?**

**Nelson Holzner:** AEVI has great potential. The marketplace proposition means that the whole process of transactions can be carried out more efficiently – with clear benefits for banks, merchants and consumers. We plan to increase the number of partners, installments and devices, and to develop more innovative solutions for merchants and partners.

We are looking to move from being a successful start-up to becoming a leading financial IT company.

**Financial IT: AEVI is a Five Star sponsor of the Money 20/20 event. What are your expectations from the conference? What are you showcasing this year?**

**Nelson Holzner:** We came to Money 20/20 last year and it was a great success. We have high expectations from the conference: certainly, this is one of the leading events in our space. For us it's still about meeting partners, telling them what we do, and showcasing how we will support them to improve their POS business. In commerce, the challenge is about finding larger volumes, through trying to make the products/services sustainably attractive for consumers. Our app solution is part of that.

We will be showcasing real-life case studies that will demonstrate what can be achieved with our B2B apps. We will also highlight how we can help merchants in the retail and hospitality industries. At Money 20/20, you will see our propositions and solutions in action.



Nelson Holzner became CEO of AEVI at the beginning of May 2017. He has a proven track record in the Fintech industry having spent the last eight years building and growing his own company, a market-leading payment provider. Before that he served Cerberus Capital Management as Vice President Private Equity.



Nicholas D. Evans,  
Vice President and General Manager  
at Unisys

# BLOCKCHAIN'S MARKET ADOPTION TRENDS AND HOW YOUR ORGANISATION CAN ASSESS ITS VALUE

As we approach Money 20/20, we must take note of the drastically evolving technology impacting the industry as we know it. That technology is blockchain, something you have no doubt heard of if you work in the financial services industry. For those who may not be so familiar, blockchain is the cryptographic technology that underlies bitcoin, and is continuing to spark investigation and integration of the ledger technology into alternative markets.

Many are unsure of its strategic significance, even as its usage continues to grow both in financial services and beyond. A key reason for its growth in popularity is that its applications can extend far beyond cash and currency methods that are currently on offer. It offers a way for people who do not know or trust each other to create a record of who owns what, that will ensure the approval and receipt of everyone concerned – a method of ensuring promises are kept, if you will.

Opinions are certainly still divided about blockchain, with some analysts touting its disruptive potential for private application into various ecosystems, and others warning that it may be a digital distraction and are advising to proceed with caution.

## An exciting but disruptive proposition

Regardless of your thoughts and opinions around blockchain, it is important for organisations to monitor developments in the technology as the market continues to mature. That way, if and when your organisation is ready to go down the blockchain path, you're not starting from scratch.

Here are four key elements to consider:

- **Make blockchain a strategic focus area in terms of market research**  
With so much market attention and activity, blockchain is worthy of inclusion in your list of strategic focus areas along with other emerging areas such as IoT and intelligent automation. Keep it on your radar and monitor customer and partner interest as well, exploring how it may align with and support your digital business strategy moving forward.
- **Recognise blockchain's current maturity and trajectory and act accordingly**

As emerging technologies are adopted in the enterprise, much like surfing, there's generally three waves you can catch along the way. A particular trend in pioneer or early adopter status needs to be handled quite differently than when it has progressed into the early

majority, or even the late majority. The kinds of benefits you can expect to obtain are quite different as well.

With blockchain in the first "emerging wave" there's strong potential for business model transformation for pioneers who are willing to take the risk. If your organisation is more conservative, you can wait for the second "differentiating wave" to extract competitive advantage as an early adopter, or the third "business value wave" to extract proven business value as part of the early majority.

- **Monitor emerging application scenarios and look for industry parallels**

Tracking the momentum of the industry associations as well as the momentum of individual players and technology providers is also critical. This insight will not only help you track emerging scenarios and test beds, but will also help you identify which alternative blockchains (altchains) are becoming prevalent for different purposes.

- **Use as-a-service offerings for rapid pilots and proof-of-concepts**  
With the maturing tools, services and infrastructure available from technology providers in the form of blockchain-as-a-service offered via the cloud, you can take a lean approach to pilots and proof of concepts and validate your envisioned business models without having to build out expensive infrastructure.

## Where are we heading?

When exploring a disruptive new technology, any business is often bombarded with an overwhelming amount of information and stark differences in opinion from industry experts. However, it's worth looking at the facts and formulating a go-forward approach that reflects blockchain's relative maturity in the market, and align it with your organisational goals and appetite for risk.

Of course, as you'd expect with any emerging technology, since blockchain is still in its relative infancy, there are still several business and technical issues to be explored and resolved.

However, you cannot simply turn a blind eye to the potential that blockchain technology can offer, and ignore the benefits it could bring to your organisation. If you make it a strategic focus area, monitor the emerging industry and application scenarios, determine when you want to dive in, and take an as-a-service approach to pilots and proof of concepts – all these factors will put you in good shape to strike when the timing is right.

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## What is the key issue that financial institutions face today?

The payments industry is always a highly competitive environment; however, it is becoming increasingly so and payments growth is now a truly global phenomenon. Traditional brick and mortar banks are no longer the dominant players; as FinTech startup successes make the headlines and non-bank digital entrants seek to transform the customer experience, reshaping the payments and broader financial services landscape, whilst retailers and mobile network organisations are making significant advances into the payments space. Against this backdrop of increasing competition, financial institutions (FIs) know that they need to differentiate to remain relevant, and that technology continues to be the fundamental building block that will either drive or constrain how innovative their companies can be.

Banks are no longer simply the custodians of their customer's money – they are customer service giants, advisors and mainstream high street brands. In this customer-centric age, trust, loyalty and great service are key to maintaining market share and anything detrimental to this trio inevitably leads to public complaints and social shaming. As a preventative approach, FIs need to use technology to transform the end-to-end customer payment journey, updating or even re-inventing their operational processes to offer simple, user-friendly experiences.

To be successful in a predominantly digital age, it is not enough for an FI to simply introduce new channels and products. To truly differentiate, FIs need to become enablers of innovation to combat the current and future challenges in the payments marketplace.

## What options are available for FIs wanting to modernise their approach to payments?

Historically there are three main approaches to modernising the technology on which to build a successful electronic banking strategy:

- 1 Build it in-house
- 2 Buy an off-the-shelf package (COTS)
- 3 Outsource to a third party

All three options have their own advantages and disadvantages. Typically building an in-house platform offers the greatest potential to differentiate, however it can be costly in terms of both resources and overheads. Buying and outsourcing offer quicker times-to-market but can be limiting for those with unique requirements as outsourcing can reduce visibility and control across the payments value chain.

## How can FIs find the approach most suited to their business model?

Unsurprisingly, different approaches are suited to different types of FI depending on what their primary focus is. When choosing to build, buy or outsource, FIs need to identify their key business objectives both the short and long term, and work out which model will facilitate these.

Another fundamental factor to consider is the actual resources and skill sets available; as internal competencies will determine the operating model and feed into the overall strategy.

For example, for well established FIs, the core business of card processing, balancing accounts and processing payments has largely remained unchanged over the past couple of decades. It is the need for ancillary services that forces the need for technological advancement. Whilst bigger banks generally have the resources to keep operations in-house, small and medium-sized businesses often lack the scalability and means to cope with these additional requirements. Outsourcing therefore is an easy solution to a business-critical problem.

On the other hand, newer FIs that might not have the size or capital to expand their business but aren't built on or constrained by legacy systems, may choose to outsource for a completely different reason; be it speed to market or a lack of physical resources. For smaller businesses that specialise in an element of the payments business, like fraud systems, outsourcing is not an option as they would be relinquishing control over their competitive edge.

However, it is important to note that the choice to build, buy or outsource is no longer a black and white decision, and as the electronic payment landscape becomes more complex, it is starting to become popular to take a hybrid approach in order to adapt technological advances quickly and seamlessly.

## What is a hybrid approach?

More often than not there isn't a software deployment option that is a complete fit for any one institution. In fact, it is fast becoming apparent that using a combination of the available approaches could reap the greatest rewards.

The most common hybrid approach is a combination of building and outsourcing; the important decision being which services to outsource, and whether outsourcing is a long or short term solution. Generally, for this approach anything business critical is kept in-house, whilst more commodity / value-added service functions are outsourced. Conversely, the combined buy and build approach has recently risen in popularity, offering the advantages of building on top of newer SOA-based open development solutions that are supported and maintained by the supplier, yet leave the FI in full operational control.

## What is the future of the build, buy and/or outsource models?

There is no one-size-fits-all solution, and again a careful assessment of current resources, business requirements and roadmaps must be carried out before the decision is made for an FI to adopt a model that will ultimately affect the future of the business and its capabilities. Outsourcing too aggressively, or solely relying on one vendor to build your development roadmap could damage payment system modernisation by not ensuring adequate return on investment; just as not considering a variety of options could severely limit the future potential for growth.

In a nutshell, the approach that offers the most success is the one that will enable the FI to manage its essential business whilst meeting the evolving needs of its customer base.

A professional headshot of Darren Busby, a middle-aged man with short brown hair and blue eyes, wearing a dark pinstriped suit jacket, a light blue checkered shirt, and a blue patterned tie. He is looking directly at the camera with a neutral expression. The background is a plain, light-colored wall.

**Darren Busby,**  
Associate Vice President & Business Development  
Director for Europe at Compass Plus

**HOW TO BUILD A BETTER  
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TERM COMMERCIAL SUCCESS**



# ENHANCING PAYMENTS CERTAINTY IN AN EVOLVING GLOBAL LANDSCAPE

Interview with Robert McKay, EVP, Accuity

**Financial IT:** *What is the Unique Selling Proposition of Accuity for financial institutions?*

**Robert:** Accuity is a global financial crime compliance, payments and KYC solutions provider. Our USP is our combination of trusted data and innovative software that helps us work with our clients to safeguard their reputations. Because of our proactive and customer-centric approach, we help our clients to process payments with greater certainty and safety, anywhere in the world.

**Financial IT:** *Who are your target clients?*

**Robert:** Traditionally our clients have been financial institutions and multi-national corporations. However, in recent years, our client base has extended to include payment service providers, ecommerce organisations, and similar types of FinTech organisations. Beyond the financial services vertical, we often work with clients in sectors such as law, gambling, logistics and insurance. In the evolving payments landscape we work with established payments services providers and new market entrants.

**Financial IT:** *What is the main business/ product line that provides the highest revenue?*

**Robert:** We have two business areas – financial crime compliance and payments. We can't disclose revenue information, but our parent company is RELX Group.

**Financial IT:** *How long does it take you to on-board a new client?*

**Robert:** This depends on the solution the client has brought to us. Some of our data and software solutions are plug and play, with minimal implementation time, whereas others are installed

software that requires implementation by Accuity's professional services teams.

**Financial IT:** *Can you give us a real-life example of applying your solution in the bank or financial institution?*

**Robert:** Please see our recent case studies for:

mBank, – story of improving payments efficiency in Poland

<https://accuity.com/resources/mbank-case-study/>

iZettle – Fintech embraces compliance tech for 4MLD requirements

<https://accuity.com/resources/izettle-case-study/>

Société Générale – more accurate payments processing

<https://accuity.com/resources/societe-generale-case-study/>

**Financial IT:** *Please identify specific changes and developments that are relevant and that have taken place since the beginning of 2017. What's your forecast for 2018? How do you think the payment landscape will change in the future?*

**Robert:** PSD2 will come into effect at the end of 2017 although it is more of a reaction to market developments by European regulators than a driving force in itself, in our view. While the U.S. markets will not be directly affected by the Directive, payment service providers and banks will still feel the disruptive effects as the sharing of customer information becomes more widespread.

We anticipate co-operation between established players and new entrants at deeper level. Banks who saw FinTechs as being likely to steal their business now see opportunities for partnership.

The impact of digital payments disruption depends to a large extent on geography. In emerging economies, disruption will



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### About Robert McKay:

Robert McKay is an Executive Vice President for Accuity with responsibility for Accuity's Payment solutions, global pre-sales consulting and service delivery teams.

Robert also heads the teams of product specialists that execute upon go-to-market strategies while facilitating sales enabling tactics.

create a boom in new customer acquisitions because of the ability of digital payments to reach the unbanked and under-banked. In some regions, notably Africa and parts of the Middle East, we should expect a strong influx of providers chasing the millions of new customers who are able to access payments services for the first time.

Should distributed ledger technology take centre stage in the digital payments world, it will prompt a fundamental shift in the way payments are made. The question for established players in the payments sector is whether to invest their immediate future in distributed ledger technology, or wait to see if the technology is viable.

Across all markets and all sectors we see a greater push to speed and improved user experience – towards 'instantaneous everything' required by savvy tech natives.

**Financial IT: Accuity is a sponsor of the Money 20/20 event.**

**What are your expectations from the conference? What are you showcasing this year?**

**Robert:** We have been watching the growth of event in terms of reputation and size. Since we are looking for the most relevant ways to connect with both established payments players and new entrants to the market, we are looking forward to many conversations around the key themes of the event.

We are also excited to show how our solutions, traditionally used by financial institutions, have been adopted to accommodate emerging technology players. This is one of our fastest growing client sectors, and it is driving our innovations in real-time data, enhanced data access, and speed to market. We are especially excited to show this market our global payments web

service, which enables more efficient, validated interbank payments, while enhancing the user experience for their customer. Both our global payments web service and our AML compliance screening tools, will be featured at our booth – which is at F26.

Finally, in recognition of growing global commerce, there is a need to screen cargo trade transactions for money laundering risk. For example, considerations like the buyer, the seller, vessel name, and even type of good could indicate a trade based money laundering (TBML) risk.

Money 20/20, through its attendees, speakers, and themes, focuses on how organisations in the payments space can build and protect their future in the industry. We are excited to be a part of that conversation, and showcase the part we play to help payments providers.

Accuity offers a suite of innovative solutions for payments and compliance professionals, from comprehensive data and software that manage risk and compliance, to flexible tools that optimise payments pathways. With deep expertise and industry-leading data-enabled solutions from the Fircosoft, Bankers Almanac and NRS brands, our portfolio delivers protection for individual and organisational reputations.

Part of RELX Group, a world-leading provider of information and analytics for professional and business customers across industries, Accuity has been delivering solutions to banks and businesses worldwide for 180 years.

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# COMBINING BANKING TECHNOLOGY WITH ISLAMIC FINANCE

An interview with Grace Saade, Vice President – Product Engineering & Product Management, Path Solutions

**Financial IT: What differentiates your platform in the Islamic banking space?**

**Grace Saade:** We are the only software company that has designed its core banking system from the ground up based on the Sharia principles, and this is a huge differentiator for us. We have tremendous industry expertise, working with over 100 Islamic financial institutions worldwide. All the knowledge captured from the different markets has further enriched our system to help our clients thrive in an ever-changing financial world.

**Financial IT: You are celebrating 25 years of existence; tell us about your approach to driving change in the Islamic finance industry. What makes your company unique?**

**Grace Saade:** Over a quarter of a century, we have inspired and developed a mission-critical cutting-edge financial software suite built from the ground up according to the Sharia guidelines. We are now, for the eighth year running, the Number 1 Islamic Software Provider in the IBS Islamic Sales League Table (which is a barometer for international core banking systems sales activity).

This outcome is not only due to the many technological contributions made to the Islamic financial sector but due to our pioneering role in creating the Islamic software industry at a time when the whole segment was in its infancy.

We are also a member of the Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI), a member of the General Council of Islamic Banks and Financial Institutions (CIBAFI), and many other standard-setting bodies. Together, we'll continue to contribute to the development of the Islamic finance sector.

**Financial IT: What is your take on the massive explosion of FinTech startups? Do you see competition, or opportunities to partner and/or integrate with?**

**Grace Saade:** There is massive disruption from FinTech startups in areas like mobile payments, money transfers, loans, fundraising, trading and asset management, to name a few. Nevertheless, the penetration of FinTech into Islamic finance is still in its infancy, with a relatively small number of players. However, the potential for long-term disruption should not be underestimated.

Our solutions are embracing the latest technologies leveraging on Internet, mobile devices and social media integration to make sure we are providing a superior customer experience with more automated, convenient, accessible and user-friendly services, thus helping the bank to become integrated into the lives of its customers with a pull rather push model.

Competition from FinTechs is not a threat for us. However, we believe that

some integration and partnerships are still possible to take advantage of new interesting features like natural language messaging systems, screen sharing, digital signatures and gamification among others.

**Financial IT: What, in your opinion, should IT providers do to cover large demand for branchless banking? What is the role of Path Solutions in the development of branchless banking?**

**Grace Saade:** Banks want to deliver better and faster customer service while reducing operating costs, and customers want to perform their banking transactions anytime anywhere without having to wait in line in the branch to be served.

At Path Solutions, we are providing our clients with a state-of-the-art Omni-channel solution with amazing customer experience covering the different available channels from conventional ATMs to POS, Kiosk, Mobile, Internet, to banking over social media platforms, allowing them to boost their brand and products, to reach a wider circle of customers who were previously unbanked, while engaging and attracting the millennial generation.

**Financial IT: Are there any new features or upcoming modules that you're excited about and would like to give us a sneak peek into?**





## About Grace Saade:

Grace received a MS in Computer Science from the Lebanese University. In addition to her distinguished character and extraordinary energy, she possesses deep tech knowledge developed over 14 years of experience in the field. She is also a calculated risk-taker, full of creativity and capacity to motivate teams to innovate and succeed in delivering on very complex projects, which ensured her promotion through the ranks of Path Solutions from Senior Developer up to VP of Engineering after successfully leading the move of **iMAL**, from client server architecture to the web-enabled SOA compliant N-tier architecture, allowing Path Solutions to remain on top of today's and tomorrow's Islamic finance industry.

**Grace Saade:** We are determined to continue to enrich and modernize our **iMAL** suite of solutions. Few years back, we revamped our system to be web-based with open SOA architecture. It also offers a sophisticated and highly secure integration layer. We have the capability now to support open banking and the PSD2 initiative and be part of this highly inter-connected financial ecosystem.

We also added cloud analytics to our offering, with features such as natural language processing that allows users to explore data and visualize patterns and trends using simple language.

And in reply to the growing need for intraday liquidity and cash flow monitoring, we have put in place an online real-time solution for monitoring liquidity as stipulated in the compliance regulations: this includes simulation and forecasting capabilities.

Also with regard to compliance, we now have a stress testing suite that responds to the bank's needs for capital management and planning by effectively assessing the impact of adverse scenarios on the bank's capital and risk profile.

And our range of solutions now includes the Basel III suite that provides coverage of all Basel III requirements from capital calculation, to leverage and liquidity ratios.

Soon, we will be launching our IFRS9 compliance pack with a range of features from recognition of financial assets to

the impairment calculations, as well as a new solution for financial consolidation of complex ownership structures in multiple jurisdictions, while also offering prepackaged reporting templates.

In response to the high market price of commodities, and the increasing volume of international trade over recent years, we have recently launched our **iMAL\*StructuredTradeFinance** system. This helps with financing purchases, warehousing and shipment of high end products and commodities.

**Financial IT: From a technology perspective, what are some of the biggest challenges that you face in designing the system?**

**Grace Saade:** Technology is now changing at an exponentially increasing rate. The amount of technological advancements that occurred in the year 2000 occur every 1 hour in 2017, and will occur every 30 seconds in 2020!

Some companies have underestimated the potential of new technologies and although they were once dominating their industry, they have disappeared, and this is a risk we cannot afford to take, accordingly, we have done great investment in our R&D to make sure our products are relevant and designed with an eye on the future, and to continue to be a thought leader in the segment, while also protecting our clients' businesses from the vulnerabilities associated with digitalization.



Powering Islamic Financial Markets

Founded in 1992, Path Solutions is a recognized market leader specialized in the provision of software solutions for the banking industry with a specialized coverage for Islamic Financing and Investment Banking.

It offers integrated solutions covering Core Banking, Customer Service Management, Investment Banking, Fund Management, Treasury and Trading in GCC and Global Capital Markets.

Its offerings include project management and integration, strategic planning, consulting services and outsourcing that address the whole spectrum of the global finance industry and in specific the Islamic finance industry.

[www.path-solutions.com](http://www.path-solutions.com)

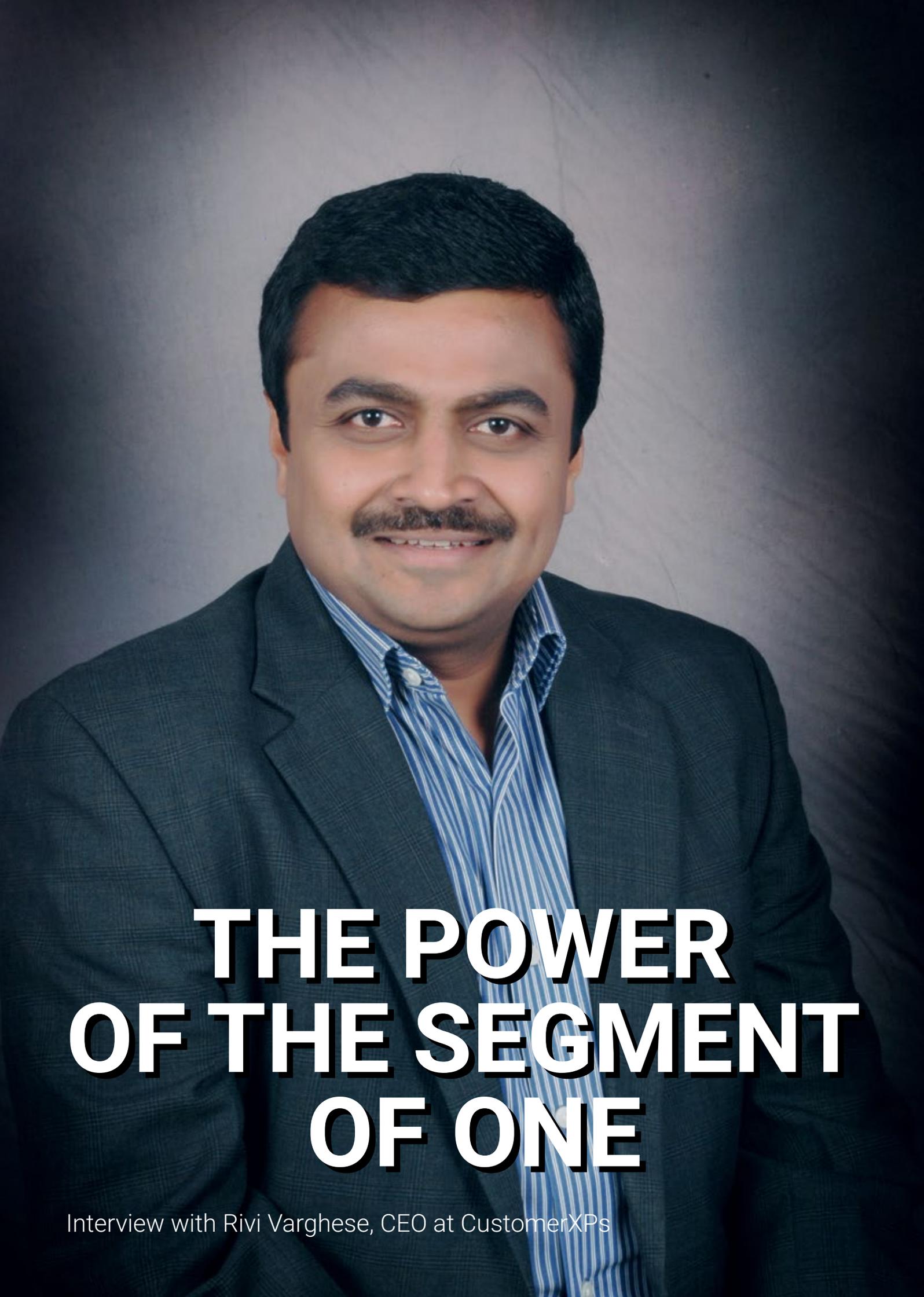


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# THE POWER OF THE SEGMENT OF ONE

Interview with Rivi Varghese, CEO at CustomerXPs

## CustomerXPs™



### *Financial IT: Rivi, please tell us a little about CustomerXPs*

**Rivi Varghese:** We were founded in 2006. We are probably best known for our Clari5 Enterprise Financial Crime Management solution. It simultaneously enables financial institutions to fight fraud and to comply with anti-money laundering/ combat financing of terrorism (AML/CFT) regulations. Clari5 enables institutions to combine information about a customer from the different silos within their own organizations, and to derive actionable insights.

### *Financial IT: What are the trends that you are seeing in your marketplace?*

**Rivi Varghese:** The background is that regulators are demanding that banks demonstrate greater control against fraud and ability to deal with AML/CFT issues. One key trend is that more banks than ever before are taking an 'omnichannel' approach to business. Increasingly, it is possible for clients of all kinds to make domestic or cross-border payments, using online facilities and/or a variety of handheld devices. Another key trend is that banks are looking to achieve a holistic, 360-degree, view of each customer.

### *Financial IT: We have been hearing about these trends for some time now. Has there been a big change in 2016?*

**Rivi Varghese:** I'd highlight two major changes. First, the banks that we have been dealing with – and particularly here in India, as well as in the Middle East and Africa – have been talking much more about these issues. They are allocating budgets to dealing with fraud and AML/CFT issues as they adopt an 'omnichannel' approach to working with their clients.

The second big change is that the banks are increasingly seeing the challenge as one that affects them all, collectively. If a suspicious transaction takes place at Institution X – and it does not matter whether that transaction is clearly fraud or that it falls foul of AML/CFT regulations – then the chances are that Institution Y will also be involved. Accordingly, we have developed a

cloud-based and, for want of a better word, federal version of Clari5 that can be applied to entire banking networks. We are in the process of launching this in a key market in Northern Europe.

### *Financial IT: CustomerXPs emphasises that Clari5 can boost revenues as well as reduce costs. Could you please explain?*

**Rivi Varghese:** Most banking customers conduct a substantial amount of their banking business with a single institution. That means that institution should have a fairly comprehensive view of each customer. The central feature of Clari5 is that it enables a bank to exploit its comprehensive knowledge of a customer to identify anomalous transactions.

However, the identification of anomalous transactions, and reduction of costs and losses, is just one opportunity. Much more exciting is the possibility of using the comprehensive knowledge of the customer to improve service and/or to cross-sell something to him/her.

This is the concept that I would describe as 'the segment of one'. No two customers are the same. If a bank truly has 360 degree knowledge about a customer, then its marketing department will know exactly what that customer is or is not likely to buy. It should therefore be possible to avoid sending the client numerous e-mails which are irrelevant and which will probably be ignored.

### *Financial IT: That is well and good. However, a number of questions remain. Can the concept of 'the segment of one' be applied in real time? Are institutions doing this in practice, or is the opportunity largely theoretical?*

**Rivi Varghese:** The beauty of Clari5 is that it operates in real time. For example, suppose that an institution sees that a customer is using his/her card to buy goods at a duty free shop in an airport. Suppose further, that the institution knows enough about that customer to be sure that he/she is likely to buy travel insurance but appears not already to have done so. The institution

has the opportunity to send an e-mail or an SMS to the customer with a precise offer for travel insurance.

Moreover, I would stress that the opportunity is not theoretical. One of the leading private sector banks that we are working with in India is taking precisely this approach.

### *Financial IT: We have included a product profile of Clari5 on our website for some time. It appears that there are a lot of competitors who are, at least in general terms, trying to serve institutions by addressing the same issues that you are. What is Clari5's competitive edge, in your view?*

**Rivi Varghese:** We believe that Clari5 has an edge for two reasons. One is that the total cost of ownership is about 30% lower than that of products that are broadly comparable. The second is that implementation is faster than for the other products. Unlike many of our competitors, we sell the license to the technology and we carry out the implementation. Our clients can usually go live within six months. Some have done so in two.

### *Financial IT: What commercial wins would you highlight from the last year or so?*

**Rivi Varghese:** We are very pleased with the way in which our business has grown since early 2016. We have begun working with three major banks in India, who have 150 million clients between them. We have also completed the Proof of Concept stage with two major global banks: one is based in the UK, and the other in Continental Europe. Discussions are continuing with major U.S. banks.

Meanwhile, one of our clients has recently won the Fraud Management and Cybersecurity award at the Celent Model Bank Awards, for its initiative on the "Art of using investments in real-time fraud management to make money for the bank". In essence, the power and the potential of the segment of one is being recognised.

### *Financial IT: Thank you very much.*

Rivi Varghese is Chief Executive Officer (CEO) of CustomerXPs. He co-founded the Bangalore-based company in 2006 along with Aditya Lal, Balaji Suryanarayana and Sandhya V. The company focuses on Banking Fraud Management, Anti-Money Laundering and Customer Experience under the product brand name, Clari5. JAFCO, the premier investment banking arm of Japan's Nomura group was a Series A investor in 2010.

# WHY **WANNACRY** SHOULD FORCE FINTECH FIRMS TO REVISIT THEIR CYBERSECURITY STRATEGY



**Andy Heather,**  
General Manager and VP, [Centrifly EMEA](#)

WannaCry: few cyber threats in recent years have garnered more column inches, or spread so rapidly and destructively across the planet. The black hats that named it certainly got one thing right; this ransomware threat brought many organisations nothing but misery as it wormed its way around the internet. The question now is, what can FinTech firms learn from the outbreak?

If nothing else, it should have made all the more urgent the need for cyber resilience. New Centrifly research tells us that organisations are struggling to manage the financial and reputational impact of online threats. One thing is clear: there's still plenty of work to be done.

## What happened?

Ransomware has of course been a major cybersecurity challenge for financial organisations for years now. In fact, 2016 was something of a record year for the hackers, with [some estimates](#) claiming the volume of attacks grew by an astonishing 6,000% netting the bad guys an estimated \$1 billion in the process.

WannaCry was different because it operated almost like a worm. Once it found its way onto an exposed PC or server, it would burrow out to all the other computers on the same corporate network and look for others on the open internet by scanning port 445. It was also unusual in making use of two NSA-

developed exploits leaked online weeks ago: EternalBlue and DoublePulsar. The former targets CVE-2017-0145, a Windows flaw in the little known SMBv1 server. However, despite Microsoft releasing a patch for this in March (MS17-010) and then issuing an emergency patch for unsupported OS versions the day after WannaCry landed, the ransomware still managed to cause widespread chaos.

Europol boss [Rob Wainwright claimed](#) just two days after its initial appearance that the campaign had hit over 200,000 victims in 150 countries. With many of these “victims” actually organisations, the real number of employees and end-customers impacted is likely to have been much higher. Ransomware encrypts all the files in an organisation and then demands payment for a decryption key – in this case \$300 – or the victim will lose access to them forever.

For any firm that hasn’t backed up recently, the implications are stark. Even those that had backed up but didn’t patch in time were forced into a lengthy process of clean-up, remediation and restore following the initial outage, causing yet more disruption and financial loss.

## Fintech under fire

There are no industry specific breakdowns to give us an idea of how badly FinTech was hit. [Deloitte claimed](#) that the attack didn’t hit financial services firms as directly as in some other industries like the NHS, where scores of Trusts were affected and patient care severely impacted. However, it claimed that because the industry is “characterised by the highest levels of interconnectivity”, the incident should provide ample cause to re-examine whether its efforts at cyber resilience are adequate.

There’s no doubt that online threats are a major source of risk for firms in the financial services industry: 89% of such firms in the FTSE 100 identified cyber threats as a principle risk in their annual reports, and 76% said they expected the risk to increase this year, according to Deloitte’s [2017 Cyber Reporting Survey](#). With the EU GDPR set to mandate breach notifications and huge fines for non-compliance from May 25 2018, there’s an even greater urgency to tackle cyber risk.

## From ransomware to data breaches

At first sight, you wouldn’t associate ransomware with a “data breach” – after all, cor-

porate data including customer information is typically rendered unavailable rather than stolen. However, that’s not how the GDPR sees it. In fact, Article 4.12 states:

“Personal data breach’ means a breach of security leading to the accidental or unlawful destruction, loss, alteration, unauthorised disclosure of, or access to, personal data transmitted, stored or otherwise processed.”

With WannaCry, data was definitely lost and in many cases effectively destroyed by virtue of it being rendered unavailable and with no back-ups to restore from. That would constitute a breach under the GDPR, which also looks unfavourably on any data controller or processor which fails to “implement appropriate technical and organisational measures to ensure a level of security appropriate to the risk”. If failing to patch a known vulnerability led to a WannaCry-like attack then GDPR fines would certainly be in the offing.

## The problem with breaches

WannaCry should be a wake-up call to FinTech firms, especially in the context of the coming EU regulation. For those still not convinced, new Centrifly analysis of 113 publicly traded benchmarked companies reveals that news of a breach causes a stock price drop of, on average, 5% for the affected firm immediately following disclosure of the breach. That amounts to revenue losses in the millions of pounds.

However, that’s just the tip of the iceberg. Our interviews with over 1,000 IT professionals, CMOs and end customers also reveal a worrying disconnect between all three in terms of priorities. For example, 73% of the consumers we surveyed believe organisations have an obligation to control access to their information. Yet only 46% of CMOs and 44% of IT security practitioners agree. Similarly, 79% of consumers said they believe organisations have an obligation to take reasonable steps to secure their personal information. But the figure went down to 64% for CMOs and 66% for IT practitioners. It seems remarkable that those working in IT especially don’t regard one of their job’s primary goals as protecting customer data.

This disconnect extends even further: just 3% of IT pros are concerned about falling share prices following a breach, while 71% claim their job has nothing to do with brand protection. It’s clear that IT professionals and others working in major organisations aren’t connecting the dots between

cybersecurity, data breaches, share price, brand reputation and their own livelihoods. With 27% of customers saying they moved companies following a breach, it’s clear that effective cybersecurity is essential to ongoing growth and success.

## Fighting back

The question is, what constitutes effective cybersecurity? Well, there’s no easy answer here as every organisation has different requirements and challenges. However, organisations must remember it’s not just a technology issue: people and process matter just as much. In terms of breach prevention that means conducting a comprehensive data mapping exercise so you know what kind of data you process, where it’s stored, who it’s shared with and how it’s protected. From there you can appraise whether current controls are enough to keep it protected in the eyes of European regulators.

As part of those controls, access should be restricted according to a “least privilege” policy, with context-based multi-factor authentication adding extra security at log-in. Take time out to revisit employee security awareness raising and education programs, ensuring they’re communicated regularly to teams and to part-time as well as full-time staff. It also goes without saying that you need to maintain good baseline security through effective patch management and advanced layered protection at network, gateway, endpoint and server levels.

WannaCry and GDPR have just raised the stakes on cybersecurity, so it’s worth taking time out to make sure your organisation isn’t left behind.





### About David Poole:

Head of Growth at MYPINPAD

An executive with 20 years at the forefront of new technology and payment processes in both the UK and USA. David has a vast experience of complex retailing solutions and payments innovation. Prior to joining the MYPINPAD team in 2013 David held a Managing Director position at mPOS technology company, Miura, founded to reshape electronic payments. He is now Business Development Director at MYPINPAD who have pioneered the digitisation of secure PIN entry into tablets and phones for both online and mPOS payment authentication.



# THE FACTORS OF LIFE: WHY MULTI-FACTOR AUTHENTICATION IS ESSENTIAL FOR ALL PAYMENT TRANSACTIONS

In recent years, there have been numerous headlines on data breaches, fraud and other harmful attacks on consumers, all powered by digital technology. A report by Juniper estimates the global cost of fraud is set to reach \$2.1trillion by 2019<sup>1</sup>. A key reason why fraudsters are able to easily hack into accounts and steal data is down to the fact that passwords are not strong enough, and that having only one barrier to entry can be easily compromised; this is why 'Strong Consumer Authentication' (SCA) and multi-factor authentication (MFA) has become essential.

When the revised EU Second Payments Services Directive (PSD2) comes into force in January 2018, all payment service providers will be required to adopt SCA. This means using multiple authentica-

tion methods based on the use of two or more elements categorised as knowledge (something only the user knows), possession (something only the user possesses) and inherence (something the user is) that are independent, in that the breach of one does not compromise the reliability of the others and is designed in such a way as to protect the confidentiality of the authentication data.

## The origins

The theory itself is nothing new, it was patented and introduced as early as 1984. Its key was to identify individuals by using something they have and something they know. It was originally developed as an extra layer of security for banking or pay-

ment purposes, but has now been deployed to different industries and verticals. It is a ubiquitous system which can be adopted for any service requiring a level of authentication to access data or make a purchase.

When credit cards were introduced in 1958 by American Express<sup>2</sup>, signature and card acted as Two-Factor Authentication (2FA) however, this was easy for fraudsters to compromise. What was good business for issuers and ease of payment for consumers turned into easy business for criminals.

Stolen and counterfeit credit cards became common and the need to verify the person using the card as their actual owner became essential. To solve this, Chip & PIN cards were developed and introduced to the UK in 2003. They revolutionised card

<sup>1</sup> <https://www.forbes.com/sites/stevemorgan/2016/01/17/cyber-crime-costs-projected-to-reach-2-trillion-by-2019/>

<sup>2</sup> <https://www.britannica.com/topic/credit-card>

payments and became the best example of 2FA.

In this process, there is a physical factor, the card, and a knowledge factor, a four-digit PIN code to authorise a payment, that need to be provided in order to transact. By requiring these rather than a signature on a receipt, it meant using stolen cards became more difficult and the payments environment became a safer place. But moving this effective process online has proven difficult.

## Authentication in the digital world

The US Government has always been supportive of strong authentication methods. In 2015, when US shifted to EMV, the FBI highlighted the importance of PIN as a great security factor<sup>3</sup>. Even more, with global cybercrime on the rise, the White House led the global charge on cybercrime by proposing a \$19 billion spend on cybersecurity during 2017, a 35% increase since 2016.<sup>4</sup> The government became aware of the impact poor security systems had on national security with President Obama highlighting a multi-layered approach to bolstering the security of federal systems was essential. With usernames and passwords being the most vulnerable authentication methods, the US government added biometrics and SMS codes to their strategies to prevent cybercrime.<sup>4</sup>

Today we see examples of 2FA in online and mobile banking when verifying identity to access accounts. Customers are required to provide a password and often a PIN number (not relating to their card PIN) and for a mobile banking, they are sometimes required to provide a biometric feature.

Now, the technology has been also adopted by email providers, social media and tech services. Tech giants like Google, Facebook, Dropbox, PayPal, Microsoft, Twitter, Instagram and Apple have all adopted Two-Factor Authentication (2FA) as part of the log in process. Even the White House had a campaign encouraging people to #TurnOn2FA<sup>5</sup>.

According to Symantec, an authority in cybersecurity, 80% of data breaches could've been averted with two-factor authentication. Nonetheless, methods that include all three factors of authentication offer even stronger security. Therefore, more and more companies and institutions are adopting MFA to ensure further levels of security beyond 2FA and compliance with SCA regulations.

As an example, the National Cybersecurity Centre on Excellence (NCCoE) is committed to a project across the US to reduce retail fraud by employing MFA using existing web analytics and contextual risk calculation.<sup>7</sup>

The same is true for the UK. Last year, UK government announced they will be investing £1.9 billion over the next five years in a cybersecurity strategy that will include automatic defences to protect businesses and citizens. The government is investing in technologies like Trusted Platform Modules (TPM) and emerging industry standards for innovative user authentication such as Fast Identity Online (FIDO), to demonstrate what they can offer, both in terms of security and overall user experience.<sup>8</sup>

With the rise in cyber-attacks and fraudulent activity in financial services there is a substantial need to improve methods of authorising transactions, protecting customers against fraud and maintain customer trust.

Particularly in payments, with the rapid uptake in mobile payments, there is a gap in the industry with regulatory controls not keeping pace with technology developments. New regulations, aimed at enhancing the security of internet payments and account access through the introduction of SCA for digital payments, is being implemented to combat this.

In 2018, PSD2 will come in to play. The European Banking Authority (EBA) mandate that all transactions over €30 will be subject to SCA and apart from a few select exceptions all merchants and banking authorities must comply.

Furthermore, with PSD2, online merchants will have the possibility of be-

coming their own payments processor as a PISP (Payment Initiation Service Provider) and connecting to bank accounts directly through APIs under the XS2A (Access to Account) rule.<sup>9</sup> In this way, authorised merchants will be able to "ask" permission to use a customers' banking details as a payment method and securely access accounts to collect payments. Not only will this move payments away from established payment gateways, card schemes and PCI networks as unique payments facilitators, it will enable faster payments and potentially reduce costs, a pull factor for independent merchants.<sup>10</sup>

## The way forward

PSD2 is designed to make online payments a more open and customer centric industry. Businesses, banks, PSPs and merchants will require new approaches, both to software and strategy, to align with the principles of the new directive and ensure compliance.

MFA will not only become a widespread reality but it will need to balance security and user-friendliness to win the hearts and minds of users. MFA must be optimised for mobile devices that are increasingly dominating the technology, online banking and ecommerce markets, whilst embracing both legacy and innovative technology, combining strong layers and factors that will best protect users' information.

Today, the best way to protect authentication data is by implementing all three types of independent credentials. From future-proofed solutions like PIN to innovative biometrics, safer and more convenient choices will do away with vulnerabilities. The way forward is keeping MFA at the heart of all security processes.

All payment transactions must begin to integrate MFA, particularly with PSD2's implementation set to change the entire payments industry. Each element, from online transactions to independent retail transactions, must offer MFA protection to provide the best possible security and ensure consumer trust.

<sup>3</sup> <https://nrf.com/media/press-releases/fbi-says-chip-based-credit-cards-safer-need-pin-protect-against-fraud>

<sup>4</sup> <https://fedtechmagazine.com/article/2016/07/how-government-will-focus-multifactor-authentication>

<sup>5</sup> <https://www.turnon2fa.com/the-white-house-wants-you-to-turnon2fa/>

<sup>6</sup> [https://www.symantec.com/content/en/uk/enterprise/other\\_resources/b-is-your-data-safe-security-non-compliance-infographic-21330416-UK.pdf](https://www.symantec.com/content/en/uk/enterprise/other_resources/b-is-your-data-safe-security-non-compliance-infographic-21330416-UK.pdf)

<sup>7</sup> <https://www.secureidnews.com/news-item/cybersecurity-experts-consider-standards-for-multi-factor-authentication-in-the-retail-sector/>

<sup>8</sup> [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/567242/national\\_cyber\\_security\\_strategy\\_2016.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/567242/national_cyber_security_strategy_2016.pdf)

<sup>9</sup> <http://www.sepaforcorporates.com/single-euro-payments-area/5-things-need-know-psd2-payment-services-directive/>

<sup>10</sup> <http://hernaes.com/2016/08/28/the-impact-of-psd-2-for-online-merchants/>

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## About John Karantzis:

John Karantzis is the CEO of iSignthis Ltd, with expertise in payments and AML/CFT law and regulation. John holds qualifications in engineering, with masters in law and also in enterprise. John is a qualified patent and trademarks attorney, a registered adjudicator, as well as a fellow of the institute of engineers Australia, and a UK engineering council chartered, FEANI European engineer.

# THE EBA'S 'ONE LEG OUT' SCENARIO AND CROSS-BORDER PAYMENTS

It's a given that in 2017, Payment Service Providers (PSPs) within the European Economic Area (EEA) are able to facilitate cross-border payments from card holders to merchants with ease. The ability to make payments via cards has been a feature available domestically and cross border since the inception of eCommerce.

With the introduction of the Payment Service Directive 2 (PSD2) in 2018, things may not be quite so straight forward. Increased compliance, due diligence and reporting requirements will make processing card payments originating from outside the EEA extremely difficult, posing serious technical and compliance challenges for payments not conforming with Strong Customer Authentication requirements.

The European Banking Authority (EBA) recently released its Regulatory Technical Standards (RTS), which outlines the requirements for Strong Customer Authentication, per requirements of Article 98 of the PSD2.

Under the new RTS, tough new regulation had been introduced to cross-border card payments originating from outside the EEA, known as the 'one leg out' scenario.

The term 'one leg out' means that the regulation impacts one of the parties involved in a transaction. For example, a EEA based card acquiring PSP acting for an EEA based merchant will be subject to the regulation, whilst a non EEA card issuing PSP and their card holder will not. However, the EEA based acquiring PSP must comply with the regulation, which in turn has the effect of imposing the regulation indirectly on the other parties, whilst the effects of the regulation, impact the card issuer and the card holder directly.

The one leg out scenario of the EBA's PSD2 RTS is explained within the rationale at paragraph 16, which states:

*"...when the PSP of the acquirer is established in a jurisdiction where it is not legally required to support the strong customer authentication procedure designed by the European issuing PSP, the European PSPs shall make every reasonable effort to determine the legitimate use of the payment instrument."*

and further at [295] of the General Response

*"As stated in paragraph 16 of the rationale section of the final report, the EBA's interpretation of PSD2 requirements is that merchants and payee's PSPs should make their best effort to apply SCA in the case of foreign cards or EEA cards used outside the EU."*

This 'reasonable effort' requirement is a great unknown at present, and what will constitute a 'reasonable effort' will be the subject of much discussion in coming months, as will the impact of the 'legal' tension

between the use of the terms 'reasonable' and 'best' efforts, within the EBA RTS text.

Coming back to solving the issue at hand; practical methods to determine the legitimate use of a payment instrument do exist, but are either manual, require tripartite involvement via 3DSecure, or are via other means covered by a small number of patent holders, including PayPal Inc and iSignthis Ltd.

This makes options for PSPs extremely limited given that 3DSecure has woeful uptake outside of the EEA, and alternative payment verifications methods have been extensively covered by patents, including European patents.

## So, what are the alternatives?

The use of micro deposits, or use of dynamically changing descriptors in statements or simply subtracting or adding a small fee to the Sales Amount are common methods used to verify an account. These are, however, fraught with legal and payment rule challenges, with the first two being the subject of granted patents, and thus the prospect of infringement litigation, and the latter being inconsistent with card scheme rules and a reconciliation nightmare.

In 2013, PayPal Inc successfully appealed the European Patent Office decision and was granted its 'micro-deposits' patent. This little known decision may present PayPal with an infringement driven windfall in years to come, and it represents an immediate challenge for even Regulatory Guidance such as the UK's JMLSG, which suggests it as a means of verifying an account.

PSPs must now be alive not only to the possibility of direct patent infringement for patents granted within the European Patent Office or EEA member states, but also for patents granted outside the EEA where the cardholder may reside, if using any of these forms of account verification.

The combined risk of non-compliance and possible patent infringement will make cross-border payments particularly challenging for PSPs, as the EEA moves towards implementation of the PSD2.

The team at iSignthis has spent years researching and developing solutions to the challenges above. The result is our Payidentity™ service, which incorporates our own patented technology. Payidentity™ offers a potential 'safe harbour' against patent infringement of third party patents, solves the 'one leg out' scenario, as well as provides an alternative to 3DSecure to meet the SCA requirements of the PSD2. The iSignthis team would be pleased to discuss how we can help PSPs and merchants alike.

<sup>1</sup> <https://www.eba.europa.eu/regulation-and-policy/payment-services-and-electronic-money/regulatory-technical-standards-on-strong-customer-authentication-and-secure-communication-under-psd2>

<sup>2</sup> <https://www.epo.org/law-practice/case-law-appeals/recent/t090844eu1.html>

<sup>3</sup> 2014 JMLSG, s3.48 Part II

# TOP 50 FINANCIAL IT 2016/2017 PATHFINDER RANKING

## WHO WILL BE WHO IN THE FINTECH WORLD?

### Financial IT launches its 2016/2017 Pathfinder Ranking

Mobile banking and payments appear to be the main focus of the numerous (mainly small) FinTech companies that have raised funds – from a surprisingly diverse variety of backers – over the last three years.

#### Welcome to the Financial IT 2016/2017 Pathfinder Ranking

What is happening in the world of FinTech is one thing. What will happen is another. To gain a clearer insight into how the FinTech universe will appear in three years time, we are developing the Financial IT 2016/2017 Pathfinder Ranking, a definitive listing of the 50 most promising new startup companies.

Nominations have come from Financial IT's community of readers, FinTech providers and subscribers. Given the pace of change, we have only accepted nominations for startup companies that came into existence in 2013 or later. Our Expert Panel, consisting of industry veterans, venture capitalists (VCs) and Financial IT's senior editors and research analysts, will draw up the Financial IT 2016/2017 Pathfinder Ranking on the basis of the information gathered.

#### **We consider the following criteria:**

- Uniqueness of the FinTech solution to a particular challenge
- Differentiating factors/Innovation points
- Stage of Development (early stage, bootstrapped, funded (Seed, A, B, C Rounds), IPO/Exit stage) – Coverage (geographic diversity and size of the market that is being addressed)
- Team, Background, etc.

For now, though, we have ranked the 70 companies nominated on the basis of the average score for four main criteria and the quantity of funds raised. We have recognized 50 most promising FinTech startups from the list and named them **TOP 50**. Those

companies that didn't receive the high scores and remained below the line were nominated as **Rising Stars**.

Over time, we hope that the Financial IT 2016/2017 Pathfinder Ranking will be revised and extended, so that it is seen as a crucial work of reference for the industry. Even at this early stage in the process, a number of clear insights are evident.

#### **Key Takeaways:**

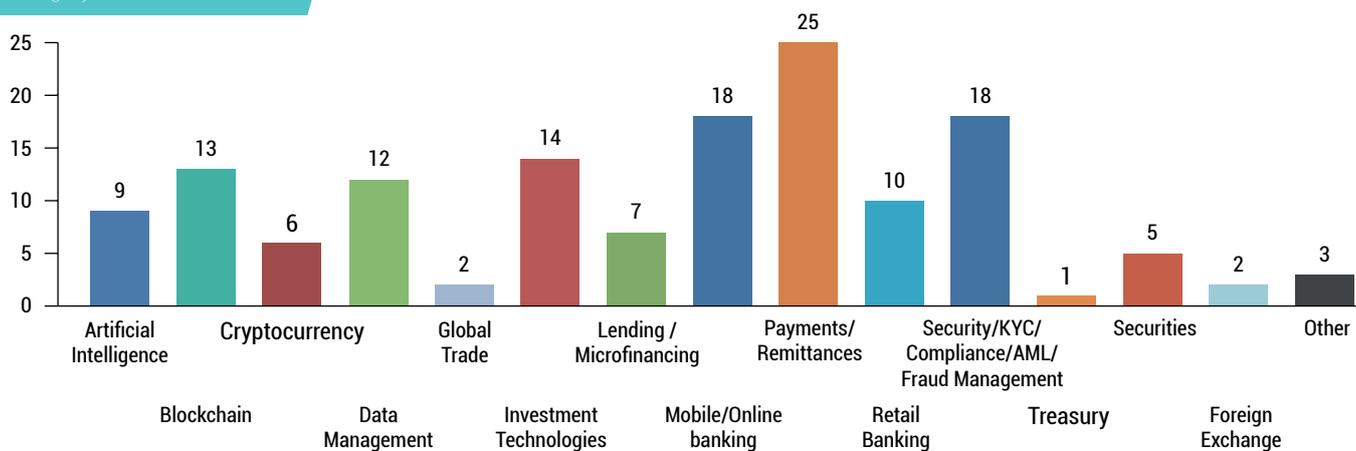
- Most of the nominated Pathfinders are relatively small companies, with only 10 of the 70 having raised more than US\$10mn. Most have no more than a few dozen employees and associates.
- Funding sources are varied.
- Although the Pathfinders come from a variety of countries, a disproportionately large number are based in the United States or the UK.
- It is not helpful to be categorical about the main area of interest of each of the Pathfinders. This is because there is often an overlap between the major elements of FinTech as Financial IT would see them. Blockchain often plays a key role in security/KYC solutions: Artificial Intelligence (AI) is often a key element of mobile banking solutions, and so on.
- Nevertheless about one fifth of the Pathfinders have indicated that mobile banking and payments are their most important areas of focus.
- About one seventh of the Pathfinders have indicated that AI is their most important area.
- Similar numbers are focusing primarily on each of blockchain, data management/ core banking and investment/wealth management technology.
- Smaller numbers of the Pathfinders are focusing mainly on (micro)-lending, KYC/ security and other areas.

If you wish to nominate the company in our Pathfinder Ranking please send us your email request to [surveys@financialit.net](mailto:surveys@financialit.net) or call us at +44 (0) 208 819 32 53

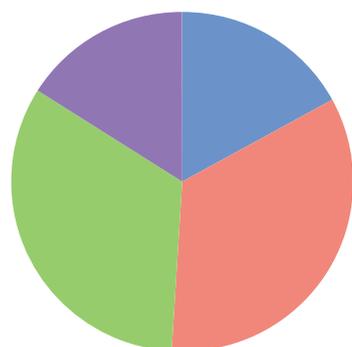
Geographic Location



Category

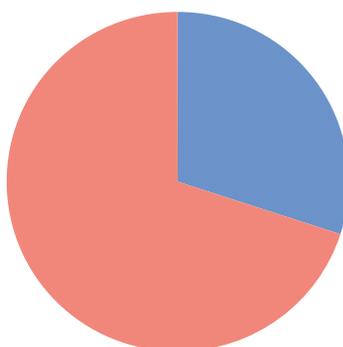


Year of inception



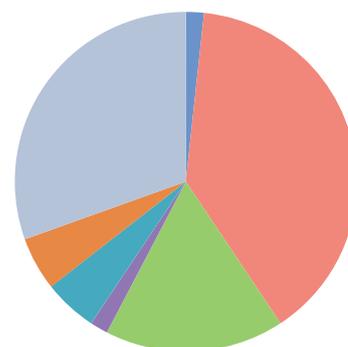
2013	17%	2015	33%
2014	34%	2016	16%

Stage of Development



Early Stage/Bootstrap	30%
Funded	70%

Money raised from



Venture capital & self-funded	2%	Investors	2%
Venture capital	39%	Incubator	5%
Self-funded	17%	Crowdfunding	5%
		Angel investors	31%

# TOP 50 MOST PROMISING STARTUPS 2016/2017

Rank Nº	Company	Industry Area	Inception	Headquarter	Founder(s)	Team Size	Stage of Development	Money Raised From
1	Atom Bank	Mobile/Online Banking	2014	United Kingdom	Anthony Thomson, Mark Mullen	240	First year of business (fully launched October 2016)	Angel Investors
2	Nubank	Mobile/Online Banking, Payments/Remittances	2014	Brazil	David Vélez, Cristina Junqueira, Edward Wible	370	Funded (Seed, A, B, C Rounds)	Bank Credit and Venture Capital
3	Lemonade	Artificial Intelligence, Insurance	2015	United States	Daniel Schreiber, Shai Winer	25-50	Funded (Seed, A, B, C Rounds)	Venture Capital
4	Monzo	Mobile/Online Banking	2015	United Kingdom	Tom Blomfield, Paul Rippon, Jonas Huckestein, Gary Dolman, Jason Bates	25-50	Funded (Seed, A, B, C Rounds)	Venture Capital
5	Beam Wallet	Payments/Remittances, Mobile Payments	2013	United Arab Emirates	Serdar Nurmammedov, Shezan Amiji, Nadim Khoury	25-50	Funded (Seed, A, B, C Rounds)	Angel Investor
6	SETL	Blockchain, Payments/Remittances	2015	United Kingdom	Peter Randall, Anthony Culligan, Nicholas Pennington, Francois Barthelemy	10-24	Funded (Seed, A, B, C Rounds)	Angel Investor
7	NYMBUS, Inc	Data Management, Core Banking	2015	United States	Scott Killoh, Alexander Lopatine	150	Funded (Seed, A, B, C Rounds)	Venture Capital
8	Token	Data Management, Mobile/Online Banking, Payments/Remittances, Retail Banking	2015	United States	Steve Kirsch, Yobie Benjamin	10-24	Early Stage/Bootstrap	Angel Investor
9	Yoyo Wallet	Payment & Loyalty App	2015	United Kingdom	Alain Falys, Michael Rolph, Dave Nicolson	25-50	Funded (Seed, A, B, C Rounds)	Angel Investor
10	Grow Financial Inc.	Data Management, Lending / Microfinancing, Mobile/Online Banking, Retail Banking, Security/KYC/Compliance/AML/Fraud Management	2013	Canada	Kevin Sandhu	25-50	Early Stage/Bootstrap	Angel Investor
11	Point	Real Estate Investment	2015	United States	Eddie Lim, Eoin Matthews, Alex Rampell	10-24	Funded (Seed, A, B, C Rounds)	Venture Capital
12	ComplyAdvantage	Artificial Intelligence, Data Management, Payments/Remittances, Security/KYC/Compliance/AML/Fraud Management	2014	United Kingdom	Charlie Delingpole	over 50	Funded (Seed, A, B, C Rounds)	Venture Capital
13	Data Republic	Data Management	2014	Australia	Paul McCarney, Danny Gilligan	10-24	Early Stage/Bootstrap	Venture Capital and Self-funded
14	Smartkarma	Investment Technologies	2014	Singapore	Raghav Kapoor, Lee Mitchell, Jon Foster	25-50	Funded (Seed, A, B, C Rounds)	Venture Capital
15	Elliptic	Blockchain, Cryptocurrency, Security/KYC/Compliance/AML/Fraud Management	2013	United Kingdom	James Smith, Tom Robinson, Adam Joyce	10-24	Funded (Seed, A, B, C Rounds)	Venture Capital

Rank №	Company	Industry Area	Inception	Headquarter	Founder(s)	Team Size	Stage of Development	Money Raised From
16	Mesitis Pte Ltd	Wealth Management	2013	Singapore	Tanmai Sharma	25-50	Funded (Seed, A, B, C Rounds)	Angel Investor
17	Trunomi	Retail Banking, Security/KYC/Compliance/AML/Fraud Management	2013	United States	Stuart Lacey	10-24	Funded (Seed, A, B, C Rounds)	Venture Capital
18	Prive Services Limited	Wealth and asset management	2013	Hong Kong	Charles Wong, Julian Schillinger	25-50	Early Stage/Bootstrap	Self-funded
19	Beehive	Lending / Microfinancing	2014	United Arab Emirates	Craig Moore	10-24	Funded (Seed, A, B, C Rounds)	Crowdfunding
20	Ovamba Solutions ("Ovamba")	Artificial Intelligence, Data Management, Global Trade, Investment Technologies, Security/KYC/Compliance/AML/Fraud Management, Funding	2013	United States	Marvin Cole, Viola Llewellyn	10-24	Funded (Seed, A, B, C Rounds)	Investors
21	Qumram	Security/KYC/Compliance/AML/Fraud Management, Customer experience analytics	2013	Switzerland	Simon Scheurer, Mathias Wegmueller	25-50	Early Stage/Bootstrap	Angel Investor and Venture Capital
22	Coinify ApS	Blockchain, Cryptocurrency, Payments/Remittances, Security/KYC/Compliance/AML/Fraud Management, Foreign Exchange	2014	Denmark	Lasse Birk Olesen, Mark Højgaard	10-24	Funded (Seed, A, B, C Rounds)	Angel Investor and Venture Capital
23	B-Secur	Payments/Remittances, Securities	2015	Northern Ireland	Colin Anderson	10-24	Funded (Seed, A, B, C Rounds)	Venture Capital
24	PensionBee	Investment Technologies, Mobile/Online Banking	2014	United Kingdom	Romi Savova, Jonathan Lister	10-24	Funded (Seed, A, B, C Rounds)	Angel Investor
25	Quantstore	Investment Technologies, Mobile/Online Banking, Retail Banking, Wealth Management	2015	United Kingdom	Peter van Kleef, Dr. Frank Neumann, Christoph Daub	10-24	Funded (Seed, A, B, C Rounds)	Self-funded
26	Pushfor	Data Management, Security/KYC/Compliance/AML/Fraud Management, Secure Content Sharing, Digital Engagement Models	2013	United Kingdom	John Safa	10-24	Funded (Seed, A, B, C Rounds)	Venture Capital
27	ThisIsMe	Security/KYC/Compliance/AML/Fraud Management	2014	South Africa	David Thomas, Juan Furmie	10-24	Funded (Seed, A, B, C Rounds)	Angel Investor
28	Earny	Consumer Service Automation	2016	United States	Ilian Zerbib, Oded Vakrat, Dori Yona	10-24	Funded (Seed, A, B, C Rounds)	Venture Capital
29	Twisto	Lending / Microfinancing, Mobile/Online Banking, Payments/Remittances	2013	Czech Republic	Michal Smida, Lukas Janousek, Lukas Hurych, Viktor Stiskala	1-9	Funded (Seed, A, B, C Rounds)	Venture Capital
30	Qonto (Olinda SAS)	Retail Banking	2016	France	Alexandre Prot, Steve Anavi	10-24	Funded (Seed, A, B, C Rounds)	Angel Investor
31	Valoot	Payments/Remittances	2016	Hong Kong	Ovidiu Olea	1-9	Early Stage/Bootstrap	Self-funded
32	Veridu	Cryptocurrency, Payments/Remittances, Security/KYC/Compliance/AML/Fraud Management	2014	United Kingdom	Rasmus Groth, Flavio Batista, Ian Green	10-24	Funded (Seed, A, B, C Rounds)	Angel Investor
33	Splittable	Payments/Remittances, PropTech/FinTech	2014	United Kingdom	Nick Katz, Vasanth Subramanian	10-24	Funded (Seed, A, B, C Rounds)	Venture Capital

Rank Nº	Company	Industry Area	Inception	Headquarter	Founder(s)	Team Size	Stage of Development	Money Raised From
34	Equitise	Investment Technologies	2014	Australia	Chris Gilbert, Jonny Wilkinson, Panche Gjorgevski	10-24	Funded (Seed, A, B, C Rounds)	Venture Capital
35	Thinknum	Data Management, Investment Technologies, Securities	2014	United States	Gregory Ugwi, Justin Zhen	10-24	Funded (Seed, A, B, C Rounds)	Venture Capital
36	Plutus.it	Blockchain, Cryptocurrency, Global Trade, Mobile/Online Banking, Payments/Remittances	2015	United Kingdom	Danial Daychopan, Jasper Tay	10-24	Funded (Seed, A, B, C Rounds)	Crowdfunding
37	Cendit	Mobile/Online Banking, Payments/Remittances, Security/KYC/Compliance/AML/Fraud Management	2015	United Kingdom	Mark Seddon	1-9	Early Stage/Bootstrap	Self-funded
38	Finimize	Automated advice (algorithms)	2015	United Kingdom	Max Rofagha, Scott Tindle	1-9	Funded (Seed, A, B, C Rounds)	Venture Capital
39	Spotcap Global Services	Lending / Microfinancing	2014	Germany	Jens Woloszczak	90	Funded (Seed, A, B, C Rounds)	Venture Capital
40	Bambu	Artificial Intelligence, Investment Technologies	2016	Singapore	Ned Phillips	10-24	Funded (Seed, A, B, C Rounds)	Angel Investor
41	KyoLAB Limited	Artificial Intelligence, Blockchain, Data Management, Security/KYC/Compliance/AML/Fraud Management	2016	United Kingdom	Jan-Michael Gorecki	1-9	Early Stage/Bootstrap	Self-funded
42	Enterprise bot	Artificial Intelligence, Retail Banking	2016	United Kingdom	Pranay Jain, Ravina Mutha	1-9	Early Stage/Bootstrap	Incubator
43	BlockEx	Blockchain, Investment Technologies, Security/KYC/Compliance/AML/Fraud Management, Treasury, Securities	2015	United Kingdom	Adam Leonard, Aleks Nowak	10-24	Early Stage/Bootstrap	Self-funded
44	bunq	Mobile/Online Banking	2014	Amsterdam	Ali Niknam	over 50	Funded (Seed, A, B, C Rounds)	Self-funded
45	Ways2Wealth	Artificial Intelligence, Investment Technologies	2016	Switzerland	Mirko Ulbrich	1-9	Early Stage/Bootstrap	Self-funded
46	Configo	Mobile/Online Banking, Retail Banking	2015	Israel	Yosi Dahan, Natan Abramov	1-9	Early Stage/Bootstrap	Self-funded
47	SecurionPay	Payments/Remittances	2014	Switzerland	Lucas Jankowiak	10-24	Funded (Seed, A, B, C Rounds)	Angel Investor
48	BankEx	Artificial Intelligence, Blockchain, Lending / Microfinancing, Security/KYC/Compliance/AML/Fraud Management	2016	Russia	Igor Khmel	1-9	Early Stage/Bootstrap	Incubator
49	Smartly Pte Ltd	Data Management, Investment Technologies, Retail Banking, Security/KYC/Compliance/AML/Fraud Management	2015	Singapore	Keir Veskivali, Artur Luhaaar	1-9	Funded (Seed, A, B, C Rounds)	Venture Capital
50	Everledger	Blockchain	2015	United Kingdom	Leanne Kemp	10-24	Funded (Seed, A, B, C Rounds)	Angel Investors

## RISING STARS IN THE PATHFINDER RANKING 2016/2017

Company	Industry Area	Inception	Headquarter	Founder(s)	Team Size	Stage of Development	Money Raised From
Market EarlyBird	Investment Technologies	2013	United Kingdom	Danny Watkins	1-9	Funded (Seed, A, B, C Rounds)	Angel Investor
Abra	Blockchain, Cryptocurrency, Payments/Remittances	2014	United States	Pete Kelly, Bill Barhydt	25-50	Funded (Seed, A, B, C Rounds)	Venture Capital
Cashaa	Blockchain, Cryptocurrency, Payments/Remittances	2016	United Kingdom	Kumar Gaurav	1-9	Funded (Seed, A, B, C Rounds)	Self-funded
Mergims	Lending / Microfinancing, Mobile/ Online Banking, Payments/ Remittances	2015	Switzerland	Muhire Louis Antoine	1-9	Funded (Seed, A, B, C Rounds)	Venture Capital
Notakey	Security/KYC/Compliance/AML/ Fraud Management	2016	Latvia	Janis Kirsteins, Gints Kirsteins, Janis Graubins	1-9	Early Stage/Bootstrap	Angel Investor
Trriple	Lending / Microfinancing, Payments/Remittances	2014	United Arab Emirates	Abdul Salah, Kerem Turkmen, Lugman Abdi	1-9	Funded (Seed, A, B, C Rounds)	Crowdfunding
Veridate Financial	Data Management, Investment Technologies, Securities	2015	Hong Kong	Peter Hatz	1-9	Early Stage/Bootstrap	Incubator
Bridg	Mobile/Online Banking, Payments/ Remittances	2014	United Arab Emirates	Moussa Beidas, Nadim Jarudi	1-9	Early Stage/Bootstrap	Angel Investor
Credntia	Digital Identification Management	2014	United States	Cody Winton and Private Investor	1-9	Funded (Seed, A, B, C Rounds)	Self-funded and Angel Investor
SDK.finance	Mobile/Online Banking, Payments/ Remittances	2014	Czech Republic	Alex Malyshev, Pavlo Sedelov	10-24	Funded (Seed, A, B, C Rounds)	Self-funded
Cobalt DL	Blockchain, Foreign Exchange	2015	United Kingdom	Andy Coyne, Adrian Patten	10-24	Funded (Seed, A, B, C Rounds)	Angel Investor
PAYMAGNET	Payments/Remittances	2015	Slovakia	Martin Glettlet, Stephen A.Crystal Esq.	1-9	Early Stage/Bootstrap	Self-funded
Metamako	Data Management	2013	Australia	David Snowdon, Scott Newham and Charles Thomas	25-50	Funded (Seed, A, B, C Rounds)	Venture Capital
Yoti	Security/KYC/Compliance/AML/ Fraud Management	2014	United Kingdom	Robin Tombs, Noel Hayden, Duncan Francis	120	Early Stage/Bootstrap	Self-funded
Bluzelle	Blockchain, Payments/Remittances, Security/KYC/Compliance/AML/ Fraud Management	2014	Singapore	Pavel Bains, Neeraj Murarka	1-9	Funded (Seed, A, B, C Rounds)	Venture Capital
Wala	Mobile/Online Banking, Payments/ Remittances, Retail Banking	2015	South Africa	Tricia Martinez, Samer Saab	1-9	Early Stage/Bootstrap	Angel Investor
BlockApps, Inc	Blockchain	2015	United States	James Hormuzdiar, Kieren James-Lubin, Victor Wong	10-24	Funded (Seed, A, B, C Rounds)	Venture Capital
baningo GmbH	Retail Banking	2015	Vienna	Max Nedjelik, Harald Meinl, Michael Niessl	1-9	Funded (Seed, A, B, C Rounds)	Angel Investor
Card Switch	Artificial Intelligence, Mobile/ Online Banking, Payments/ Remittances, Securities, Cards Prevention tool	2016	Lebanon	Roger Abboud, Jad Bouhabib	1-9	Early Stage/Bootstrap	Self-funded
MONI Ltd.	Mobile/Online Banking, Payments/ Remittances	2014	United Kingdom	Jani Kajala, Martti Malmi, Lauri Sommarberg, Antti Pennanen	1-9	Funded (Seed, A, B, C Rounds)	Angel Investors



# EVOLVE WITH US

Compass Plus provides comprehensive, fully integrated and flexible payments software and services that help financial institutions and payment service providers meet rapidly changing market demands. Our diverse customer base spans retail banks, processing centres, national switches and personalisation centres in countries across Europe, Asia, Africa, the Middle East, North and South America. With more than 25 years' experience, Compass Plus helps build and manage all-scale electronic payment systems that generate new revenues and improve profits for its customers.

Financial 

# **Financial Technology Buyers' Guide**

**Special Money 20/20 Europe Issue  
June 2017**



Accuity offers a suite of innovative solutions for compliance and payments professionals, from comprehensive data and software that manage risk and compliance, to flexible tools that optimize payments pathways. With deep expertise and industry-leading data-enabled solutions from the Fircosoft, Bankers Almanac and NRS brands, our portfolio delivers protection for individual and organizational reputations.

COMPANY PROFILE		COMPANY CONTACT DETAILS	
Company type	Public Company	Contact	Sales Department
Annual turnover	Undisclosed	Job Title	Sales and Support
Number of Customers Total	Undisclosed	Contact address	110 High Holborn, London, WC1V 6EU
Number of Employees	over 1000	Telephone number	+44 207 653 3800
Inception	1836	Email Address	sales@accuity.com
Geographical coverage	Global	Homepage address	www.accuity.com



AEVI brings acquirers closer to their merchants, and merchants closer to their consumers, with an open Ecosystem that combines apps, payment services and a multi-vendor selection of payment devices. Selecting from a marketplace of high-quality apps and services, Acquirers can quickly create differentiated, innovative SmartPOS solutions under their own brands. AEVI's centralized payments as a service platform eliminates obstacles, and helps Acquirers simplify the complex payment landscape with a single integration and access to a comprehensive suite of cloud-based, back office reporting tools for enhanced control and flexibility.

COMPANY PROFILE		COMPANY CONTACT DETAILS	
Company type	Privately Held	Contact	Martina Jeronski
Annual turnover	over €80 million	Job Title	Head Global Marketing
Number of Customers Total	Undisclosed	Contact address	Heinz-Nixdorf-Ring 1, 33106 Paderborn, Germany
Number of Employees	over 200	Telephone number	+49 (0) 52 51 / 693-3375
Inception	2015	Email Address	martina.jeronski@aevi.com
Geographical coverage	Global	Homepage address	www.aevi.com



Allevo provides software solutions that help financial institutions of all sizes reduce TCO and achieve end-to-end interoperability across the financial supply chain – by using FinTP, a complete open source application that processes transactions, automates flows and offers compliance to regulatory and industry standards. The Allevo guaranteed distribution of FinTP is aimed to grow competitiveness and offer operational risk containment, making such systems affordable to SMEs as well. FinTP and all ancillary documentation is distributed freely and openly through the FINKers United community and it provides collaboration ground for rapid development and integration of new technologies, such as crypto currencies, biometric security, data analysis algorithms.

COMPANY PROFILE		COMPANY CONTACT DETAILS	
Company type	Privately Held	Contact	Alina Enache
Annual turnover	1,44 mil. Euro (2015)	Job Title	Sales Manager
Number of Customers Total	Undisclosed	Contact address	031281 Bucharest 3, 23C, Calea Vitan, Floor 3
Number of Employees	48+	Telephone number	(+40) 21 255 45 77
Inception	1998	Email Address	sales@allevo.ro
Geographical coverage	Global	Homepage address	www.allevo.ro



Bpm'online is a global provider of award-winning CRM software that streamlines customer-facing processes and improves operational efficiency. Bpm'online financial services is a powerful CRM designed for corporate and retail banks and financial institutions to manage a complete customer journey and enhance customer experience. The users of bpm'online financial services highly value its process-driven CRM functionality, out-of-the box best practice processes and agility to change processes on the fly. Bpm'online financial services offers products that are seamlessly integrated on one platform connecting the dots between banks' business areas: retail banking and front-office, corporate banking, marketing.

COMPANY PROFILE		COMPANY CONTACT DETAILS	
Company type	Privately Held	Contact	Nadia Bezhnar
Annual turnover	Undisclosed	Job Title	Product Marketing Manager
Number of Customers Total	6500 total, 90 in financial services industry	Contact address	280 Summer street, 6th floor Boston, Massachusetts 02210 United States
Number of Employees	Over 500	Telephone number	+1 617 765 7997
Inception	2011	Email Address	Nadia.Bezhnar@bpmonline.com
Geographical coverage	Global	Homepage address	www.bpmonline.com



Founded in 1976, CGI is a global IT and business process services provider delivering high-quality business consulting, systems integration and managed services. With 68,000 professionals in 40 countries, CGI has an industry-leading track record of delivering 95% of projects on-time and on-budget. In the Financial Services industry, CGI professionals work with more than 2,500 financial institutions including 24 of the top 30 banks worldwide. We are helping our retail and wholesale banking clients reduce costs, achieve strategic objectives and drive competitive advantage. As a demonstration of our commitment, our average client satisfaction score consistently measures higher than 9 out of 10.

COMPANY PROFILE		COMPANY CONTACT DETAILS	
Company type	Corporation	Contact	Penny Hembrow
Annual turnover	\$10 billion	Job Title	Vice-President, Global Banking
Number of Customers Total	Undisclosed	Contact address	Kings Place, 90 York Way 7th Floor, London N1 9AG, UK
Number of Employees	68	Telephone number	44 (0845) 070 7765
Inception	1976	Email Address	banking.solutions@cgi.com
Geographical coverage	Americas, Europe and Asia Pacific	Homepage address	www.cgi.com



Compass Plus provides proven software and services for financial institutions, including retail banks and payment processors across the globe that operate in complex and rapidly changing business and technology environments. Compass Plus builds and quickly implements comprehensive and integrated payment technologies that allow customers to increase revenue and profits, and improve their competitive position by implementing flexible systems that meet market demands. With hundreds of successful projects spanning card, account and merchant management, card personalisation, mobile and electronic commerce implemented in record breaking time, Compass Plus ensures its customers make the most of their technology investments.

COMPANY PROFILE		COMPANY CONTACT DETAILS	
Company type	Limited Partnership	Contact	Bethan Cowper
Annual turnover	Undisclosed	Job Title	Head of Marketing and PR
Number of Customers Total	Undisclosed	Contact address	9 The Triangle, Enterprise Way, NG2 Business Park, Nottingham, NG2 1AE, UK
Number of Employees	Undisclosed	Telephone number	44 (0) 115 753 0120 44 (0) 115 986 4140
Inception	1989	Email Address	b.cowper@compassplus.com
Geographical coverage	Global	Homepage address	www.compassplus.com



Computop is a leading global Payment Service Provider (PSP) that provides compliant and secure solutions in the fields of e-commerce, POS, m-commerce and Mail Order and Telephone Order (MOTO). The company, founded in 1997, is headquartered in Bamberg, Germany, with additional independent offices in China, Hong Kong, the UK and the US. Computop processes transactions totalling \$24 billion per year for its client network of over 14,000 large international merchants and global marketplace partners in industries such as retail, travel and gaming.

COMPANY PROFILE		COMPANY CONTACT DETAILS	
Company type	Privately Held	Contact	André Malinowski
Annual turnover	Undisclosed	Job Title	Head of International Business
Number of Customers Total	Over 14,000	Contact address	Schwarzenbergstr. 4, D-96050 Bamberg, Germany
Number of Employees	100	Telephone number	+49 951 98009-0
Inception	1997	Email Address	andre.malinowski@computop.com
Geographical coverage	Global	Homepage address	www.computop.com



Currencycloud's Payment Engine is the power inside countless businesses, driving the transformation of the global payments landscape. The company is re-imagining the way money flows through the global digital economy, allowing businesses to remove the friction and inefficiencies of traditional cross-border payments using its flexible suite of APIs. Launched in 2012 Currencycloud is based in London and is regulated in Europe, the USA and Canada.

COMPANY PROFILE		COMPANY CONTACT DETAILS	
Company type	Private Limited Company	Contact	Steve Lemon
Annual turnover	Undisclosed	Job Title	Vice President Business Development
Number of Customers Total	200+	Contact address	The Steward Building, 12 Steward Street, London, E1 6FQ, United Kingdom
Number of Employees	100+	Telephone number	+44 (0)20 3326 8173
Inception	2012	Email	steve@currencycloud.com
Geographical coverage	Global	Homepage address	www.currencycloud.com

## CustomerXPs™

CustomerXPs is an enterprise software product company offering Enterprise Financial Crime Management (EFCM), Anti-money Laundering (AML) and Customer Experience Management (CEM) products for Tier-1 global banks. CustomerXPs is revolutionizing Fraud Management and Customer Experience Management in Fortune 500 banks by harnessing the power of extreme real-time, cross-channel intelligence. Voted 'Best Fraud Detection Product 2016' by OpRisk / Risknet, CustomerXPs' flagship product Clari5's differentiated approach deploys a well-synchronized, context-aware 'central nervous system' in banks with the ability to stop fraudulent transactions with real-time, actionable insights.

COMPANY PROFILE		COMPANY CONTACT DETAILS	
Company type	Sole proprietorship	Contact	Naresh Kurup
Annual turnover	Undisclosed	Job Title	Director – Marketing
Number of Customers Total	15+	Contact address	#113/1B, 1st Floor, SRIT House, ITPL Main Road, Brookefield, Bangalore – 560 037, India
Number of Employees	70	Telephone number	91-80-41672977
Inception	2006	Email	naresh.kurup@customerxps.com
Geographical coverage	South Asia, South East Asia, GCC, MENA, North America	Homepage address	www.customerxps.com



essDOCS is a leading enabler of paperless trade, providing customer-led solutions that automate and accelerate trade operations & finance. essDOCS' flagship solution – CargoDocs – delivers significant value to the entire supply chain: enabling users to streamline processes, reduce working capital needs and risk, while improving collaboration, compliance and visibility across organisations. As of Q1 2016, Over 3,600 companies, ranging from 12% of the Fortune Global 500 to innovative SMEs, use essDOCS solutions across 72 countries in the energy, agriculture, chemicals and metals & minerals markets.

COMPANY PROFILE		COMPANY CONTACT DETAILS	
Company type	Privately Held	Contact	Nicholas Demetriou
Annual turnover	Undisclosed	Job Title	VP Marketing
Number of Customers Total	3,600+	Contact address	33-34 Rathbone Place, 1st Floor, London, W1T 1JN United Kingdom
Number of Employees	55	Telephone number	44 20 3102 6600 D6
Inception	2005	Email Address	adopt@essdocs.com
Geographical coverage	EMEA, Asia Pacific, Americas	Homepage address	www.essdocs.com



Since 1991 Diasoft has been providing cutting edge financial software solutions supporting all the aspects of retail, corporate and universal banking, treasury and capital market services, and insurance business. The company's main offer to the global financial market is FLEXTERA – a SOA-based software solution for front-to-back automation of financial services. Using the most advanced technologies to create its software products, Diasoft became one of the first companies having implemented SOA-principles in the banking solutions, which is attested by IBM Banking Industry Framework certification. The company is ranked in TOP 100 global financial technology providers and TOP 5 software vendors in Russia.

COMPANY PROFILE		COMPANY CONTACT DETAILS	
Company type	Sole proprietorship	Contact	Sergey Metelskiy
Annual turnover	2014 results: 69.2 Million Dollars	Job Title	International Sales Director
Number of Customers Total	400	Contact address	3/14, Polkovaya St., Moscow, 127018, Russia
Number of Employees	1,600	Telephone number	7 (495) 780 7577
Inception	1991	Email Address	info@diasoft.com
Geographical coverage	Asia, Europe, Russia	Homepage address	www.diasoft.com



FERNBACH, a medium-sized software company, was established by Günther Fernbach in 1986 and now operates internationally. The company focuses on the automation of reporting processes, particularly in the finance and accounting sectors. Reports are created automatically for all stakeholders, employees, managers, investors and supervisory authorities. Each year, FERNBACH has been listed in the upper third of the 100 leading risk technology vendors worldwide by Chartis Research, the main provider of global research and analyses for risk management technology.

COMPANY PROFILE		COMPANY CONTACT DETAILS	
Company type	Sole proprietorship	Contact	Miriam Dittert
Annual turnover	Undisclosed	Job Title	Marketing Assistant
Number of Customers Total	more than 50	Contact address	Europa-Allee 22 Frankfurt/Main 60327, Germany
Number of Employees	150	Telephone number	+49 34605 450 135
Inception	1986	Email Address	miriam.dittert@fernbach.com
Geographical coverage	Africa, Asia, Europe	Homepage address	www.fernbach.com



Fiserv is highly regarded for its financial services technology and services innovation, including solutions for mobile and online banking, payments, risk management, data analytics and core account processing. Fiserv is helping its clients push the boundaries of what's possible in financial services delivering deep expertise and innovative solutions to help financial institutions, businesses and consumers move and manage money faster and with greater ease. The most popular solutions invented by Fiserv are DNA, CUnify, Signature, Agiliti Platform.

COMPANY PROFILE		COMPANY CONTACT DETAILS	
Company type	Public Company	Contact	Travers Clarke-Walker
Annual turnover	Undisclosed	Job Title	Chief Marketing Officer
Number of Customers Total	13,000+	Contact address	2nd Floor, One Kings Arms Yard, London EC2R 7AF United Kingdom
Number of Employees	10,000+	Telephone number	+44 (0) 7834 729 107
Inception	1984	Email	travers.clarke-walker@fiserv.com
Geographical coverage	Global	Homepage address	www.fiserv.com



INDATA is a leading industry provider of software and services for buy-side firms, including trade order management (OMS), compliance, portfolio accounting and front-to-back office. INDATA's iPM – Intelligent Portfolio Management technology platform allows end users to efficiently collaborate in real-time across the enterprise and contains the best of class functionality demanded by sophisticated institutional investors. INDATA provides software and services to a variety of buy-side clients including asset managers, registered investment advisors, banks and wealth management firms, pension funds and hedge funds. What sets INDATA apart is its single-minded focus on reducing costs and increasing operational efficiency as part of the technology equation.

COMPANY PROFILE		COMPANY CONTACT DETAILS	
Company type	Limited Liability Company (LLC)	Contact	Robyn Corcoran
Annual turnover	Undisclosed	Job Title	Marketing Coordinator
Number of Customers Total	Over 200	Contact address	115 E. Putnam Avenue, 2nd Floor, Greenwich, 06830
Number of Employees	Over 150	Telephone number	858-847-6572
Inception	1968	Email Address	robyn@indataipm.com
Geographical coverage	North America, Europe	Homepage address	www.indataipm.com



GFT Group is a business change and technology consultancy trusted by the world's leading financial services institutions to solve their most critical challenges. Specifically defining answers to the current constant of regulatory change – whilst innovating to meet the demands of the digital revolution. Utilising the CODE\_n innovation platform, GFT is able to provide international start-ups, technology pioneers and established companies access to a global network, which enables them to tap into the disruptive trends in financial services markets and harness them for their out of the box thinking.

COMPANY PROFILE		COMPANY CONTACT DETAILS	
Company type	Public Company	Contact	Dawn Blenkiron
Annual turnover	€178.76 M in H1 2015	Job Title	Business Development
Number of Customers Total	9 out of 10 world's top investment banks	Contact address	Capital House, 85 King William Street London, EC4N 7BL, UK
Number of Employees	4,000	Telephone number	+44 20 3753 5778
Inception	2001	Email Address	Dawn.Blenkiron@gft.com
Geographical coverage	Global	Homepage address	www.gft.com



Intellect Design Arena Ltd, a specialist in applying true digital technologies, is the world's first full spectrum Banking and Insurance technology products company, across Global Consumer Banking (iGCB), Central Banking, Global Transaction Banking (iGTB), Risk, Treasury and Markets (iRTM), and Insurance (Intellect SEEC). With over 25 years of deep domain expertise, Intellect is the brand that progressive financial institutions rely on for digital transformation initiatives. Intellect pioneered Design Thinking for cutting-edge products and solutions for Banking and Insurance, with design being the company's key differentiator in enabling digital transformation.

COMPANY PROFILE		COMPANY CONTACT DETAILS	
Company type	Public Limited	Contact	Phil Cantor
Annual turnover	\$124M	Job Title	Head of Digital Transaction Banking & CMO
Number of Customers Total	Over 200	Contact address	Level 35, 25 Canada Square, London, E14 5LQ, UK
Number of Employees	Over 4000	Telephone number	+44 20 7516 1359
Inception	2004	Email Address	philcantor@intellectdesign.com
Geographical coverage	Global	Homepage address	www.intellectdesign.com



Jabatix is a comprehensive, component-based software development and software production environment for batch applications on application servers based on standard technologies. The Jabatix Community Edition is an all-in-one Eclipse-based Interactive Development Environment. It is a comprehensive workbench for developing information management and reporting solutions – and this free of charge. Jabatix Enterprise extends the functionality created in the Jabatix Workbench to the Enterprise Environment and adds relevant management and monitoring services.

COMPANY PROFILE		COMPANY CONTACT DETAILS	
Company type	Public Limited Company	Contact	Janina Becker
Annual turnover	Undisclosed	Job Title	Marketing Manager
Number of Customers Total	100+	Contact address	1a, op der Ahlkerrech, L-6776 Grevenmacher, Luxembourg
Number of Employees	2	Telephone number	00352 40 22 44 1
Inception	2015	Email Address	squirrel@jabatix.net
Geographical coverage	Global	Homepage address	www.jabatix.net



Kuwait-based Path Solutions is a leading information technology solutions provider offering a broad, deep spectrum of Sharia-compliant, Riba-free and asset-backed integrated software solutions and services to the Islamic financial marketplace, covering the entire range of Islamic Banking, Retail and Corporate Banking, Investment and Financing, Treasury, Asset Management, Risk Management, and Regulatory Reporting in GCC and Global Capital Markets. Designed to meet the needs of modern Islamic banking, Path Solutions' turnkey solutions are based on an open, flexible architecture and an established deployment methodology.

COMPANY PROFILE		COMPANY CONTACT DETAILS	
Company type	Privately-owned company	Contact	Mr. Reda Khoueiry
Annual turnover	Undisclosed	Job Title	Senior Marketing Officer
Number of Customers Total	117	Contact address	P.O.Box 15-5195 Beirut, Mkalles Highway, Mkalles 2001 Bldg., 3rd Floor, Lebanon
Number of Employees	500	Telephone number	Tel: +961 1 697444
Inception	1992	Email	RKhoueiry@path-solutions.com
Geographical coverage	Middle East, GCC, Africa, Asia Pacific, South America & United Kingdom	Homepage address	www.path-solutions.com



NICE Actimize is the largest and broadest provider of financial crime, risk and compliance solutions for regional and global financial institutions, as well as government regulators. Consistently ranked as number one in the space, NICE Actimize experts apply innovative technology to protect institutions and safeguard consumers and investors assets by identifying financial crime, preventing fraud and providing regulatory compliance. The company provides real-time, cross-channel fraud prevention, anti-money laundering detection, and trading surveillance solutions that address such concerns as payment fraud, cyber crime, sanctions monitoring, market abuse, customer due diligence and insider trading.

COMPANY PROFILE		COMPANY CONTACT DETAILS	
Company type	Public Company	Contact	Cindy Morgan-Olson
Annual turnover	Undisclosed	Job Title	Head of Global Public Relations/Analyst Relations
Number of Customers Total	over 100	Contact address	1359 Broadway 5th Floor New York, NY 10018 USA
Number of Employees	over 500	Telephone number	+212 851 8842
Inception	1999	Email Address	cindy.morgan-olson@niceactimize.com
Geographical coverage	Global	Homepage address	www.niceactimize.com



Pendo Systems was established to provide a new standard in Investment Accounting System Delivery. At Pendo Systems, our mission is to be a premier provider of software solutions to global financial institutions. We strive to not only help our clients achieve their business objectives and goals, but also to contribute to the success of individuals, businesses and communities throughout the world. We are driven to work with our clients in a collaborative partnership, and are guided by the fundamental values of professionalism, respect, teamwork and quality in delivering products and services to our clients.

COMPANY PROFILE		COMPANY CONTACT DETAILS	
Company type	Sole proprietorship	Contact	Pamela Pecs Cytron
Annual turnover	over \$5M	Job Title	CEO – Pendo Systems, Inc.
Number of Customers Total	20+ top tier banks worldwide	Contact address	102 Clinton Avenue, Montclair, NJ 07042, USA
Number of Employees	over 10	Telephone number	+973 727 7853
Inception	2006	Email Address	pamela@pendosystems.com
Geographical coverage	North America	Homepage address	www.pendosystems.com



Pelican is a growth FinTech that has been driving innovation in payments and compliance for over 20 years. We deliver outstanding efficiencies to banks and corporates by injecting pioneering Artificial Intelligence technology into compliance and the end-to-end payments life cycle, drastically reducing the need for costly human intervention and manual processes. A consistent focus on innovation and industry-leading reliability has resulted in the growth of lasting relationships with major clients that use Pelican in over 55 countries globally. Pelican has offices in New York, London, Dubai and Mumbai. (88 words)

COMPANY PROFILE		COMPANY CONTACT DETAILS	
Company type	Privately held	Contact	Bill North
Annual turnover	Undisclosed	Job Title	Global Sales
Number of Customers Total	20+	Contact address	485-B Route One South, Suite 310, Iselin NJ 08830, USA
Number of Employees	150	Telephone number	+1 732 603 4990
Inception	1992	Email	bnorth@pelican.ai
Geographical coverage	Global	Homepage address	www.pelican.ai



Profile Software, an ISO-certified and listed company, is a specialised financial solutions provider, with offices in Geneva, Dubai, London, Singapore, Athens and Nicosia. It delivers market-proven solutions, with an exceptional track record of successful implementations, to the Banking and Investment Management industries. The company is acknowledged as an established and trusted partner across many regions, offering a wide spectrum of solutions to the financial services sector. Profile Software's solutions have been recognised and approved by leading advisory firms and enable Institutions worldwide to align their business and IT strategies while providing the necessary business agility to proactively respond to the ever-changing market conditions.

COMPANY PROFILE		COMPANY CONTACT DETAILS	
Company type	PLC/listed firm	Contact	Kate Tsoura
Annual turnover	Undisclosed	Job Title	Marketing Director
Number of Customers Total	250	Contact address	199, Syngrou Ave., 171 21, Athens, Greece
Number of Employees	152+	Telephone number	+30 210 9301200
Inception	1990	Email	ktsoura@profiles.com
Geographical coverage	Global	Homepage address	www.profiles.com



Cross-border e-payment specialist PPRO removes the complexity of international e-commerce payments by acquiring, collecting and processing an extensive range of alternative payments methods under one contract, through one platform and one single integration. PPRO supports international payment methods across more than 100 countries. PPRO also issues Visa and Mastercard consumer prepaid cards, under its own brand name VIABUY, and enables B2B prepaid cards, under its CROSSCARD and FLEETMONEY brands, which can be issued both physically and as virtual cards or NFC devices.

Founded in 2006 and headquartered in London, PPRO is an EU-certified financial institute with an e-money license issued by the British regulatory body FCA.

COMPANY PROFILE		COMPANY CONTACT DETAILS	
Company type	Privately Held	Contact	Sales Department
Annual turnover	Undisclosed	Job Title	Sales Department
Number of Customers Total	Undisclosed	Contact address	20 Balderton Street, London W1K 6TL
Number of Employees	200	Telephone number	+44 20 3002 9170
Inception	2006	Email	sales@ppro.com
Geographical coverage	Global	Homepage address	www.ppro.com



Reval is the leading, global provider of a scalable cloud platform for Treasury and Risk Management (TRM). Our cloud-based offerings enable enterprises to better manage cash, liquidity and financial risk, and to account for and report on complex financial instruments and hedging activities. The scope and timeliness of the data and analytics we provide allow chief financial officers, treasurers and finance managers to operate more confidently in an increasingly complex and volatile global business environment. With offerings built on the Reval Cloud Platform companies can optimize treasury and risk management activities across the enterprise for greater operational efficiency, security, control and compliance.

COMPANY PROFILE		COMPANY CONTACT DETAILS	
Company type	Privately Held	Contact	Günther Peer
Annual turnover	Undisclosed	Job Title	Sales & Client Relations TS
Number of Customers Total	575+	Contact address	Arche Noah 11, 8020 Graz, Austria
Number of Employees	500+	Telephone number	+43 316 908030 593
Inception	1999	Email	guenther.peer@reval.com
Geographical coverage	North America, EMEA and Asia Pacific	Homepage address	www.reval.com



Ripple provides global financial settlement solutions to enable the world to exchange value like it already exchanges information – giving rise to an Internet of Value (IoV). Ripple solutions lower the total cost of settlement by enabling banks to transact directly, instantly and with certainty of settlement. Ripple bridges these siloed networks with a common global infrastructure that brings new efficiency to financial settlement by enabling real-time settlement, ensuring transaction certainty and reducing risk.

COMPANY PROFILE		COMPANY CONTACT DETAILS	
Company type	Privately Held	Contact	ZZ Zhuang
Annual turnover	Undisclosed	Job Title	Sales Operations Associate and Business Development
Number of Customers Total	25 active integrations	Contact address	300 Montgomery St 12th Floor San Francisco, CA 94104, US
Number of Employees	110	Telephone number	650-644-6228
Inception	2012	Email	zz@ripple.com
Geographical coverage	Global	Homepage address	www.ripple.com



SmartStream provides Transaction Lifecycle Management (TLM®) solutions and Managed Services to dramatically transform the middle and back-office operations of financial institutions. Over 1,500 clients, including more than 70 of the world's top 100 banks, 8 of the top 10 asset managers, and 8 of the top 10 custodians rely on SmartStream's solutions. SmartStream delivers greater efficiency, automation and control to critical post trade operations including: Reference Data Operations, Trade Process Management, Confirmations and Reconciliation Management, Corporate Actions Processing, Fees and Invoice Management, Collateral Management, Cash & Liquidity Management and Compliance Solutions.

COMPANY PROFILE		COMPANY CONTACT DETAILS	
Company type	Privately Held	Contact	Nathan Gee
Annual turnover	Undisclosed	Job Title	Senior Marketing Manager
Number of Customers Total	1,500 clients	Contact address	St Helen's, 1 Undershaft, London EC3A 8EE, UK
Number of Employees	over 500	Telephone number	+44 (0) 20 7898 0630
Inception	2000	Email Address	nathan.gee@smartstream-stp.com
Geographical coverage	Global	Homepage address	www.smartstream-stp.com



Tagetik provides intuitive, enterprise-scale performance management software solutions that drive business results, improve efficiency and reduce risk. Tagetik offers the simplicity of the Cloud and the power to unify financial and operational planning; shorten the consolidation and close process; immediately analyse results, model and compare full financial statement impact of business scenarios; adjust strategic plans; update rolling forecasts; produce formatted and auditable financial statements and management reports and automate disclosure and board reporting. Tagetik's built-in financial intelligence allows finance and operations executives to orchestrate multiple processes in one software solution.

COMPANY PROFILE		COMPANY CONTACT DETAILS	
Company type	Privately Held	Contact	Dave Kasabian
Annual turnover	Undisclosed	Job Title	Chief Marketing Officer
Number of Customers Total	850+	Contact address	9 West Broad St., 4th Floor Stamford, CT 06902
Number of Employees	425+	Telephone number	+1 (203) 391-7520
Inception	1986	Email Address	DaveKasabian@tagetik.com
Geographical coverage	Global	Homepage address	www.tagetik.com



Volanté Technologies is a global leader in the provision of software for the integration, validation, processing and orchestration of financial messages, data and payments within financial institutions and corporate enterprises. Many clients use Volanté to assist with multiple product implementations ranging from message transformation and integration, through to the processing and orchestration of transaction data and payments. Along with its products, Volanté Designer and its VolPay suite of payments integration and processing products, Volanté constantly maintains a growing library of over 85 domestic and international financial industry standards plugins with more than 250 prebuilt, customizable, and bidirectional transformations to and from these standards.

COMPANY PROFILE		COMPANY CONTACT DETAILS	
Company type	Private Company	Contact	Fiona Hamilton
Annual turnover	Undisclosed	Job Title	Vice-President, Europe and Asia
Number of Customers Total	more than 80 in 26 countries	Contact address	9 Devonshire Square, London, EC2M 4YF, 7th Floor, London N1 9AG, UK
Number of Employees	around 120 and growing	Telephone number	+44 (0)203 178 2970
Inception	2001	Email	fiona.hamilton@volantetech.com
Geographical coverage	US, Latin America, UK, Europe, Middle East, Africa, India	Homepage address	www.volantetech.com



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# Innovative process-driven CRM for banks and financial institutions to streamline customer-facing processes

## Bank customer journey

An innovative software for bank front-office and contact center management.

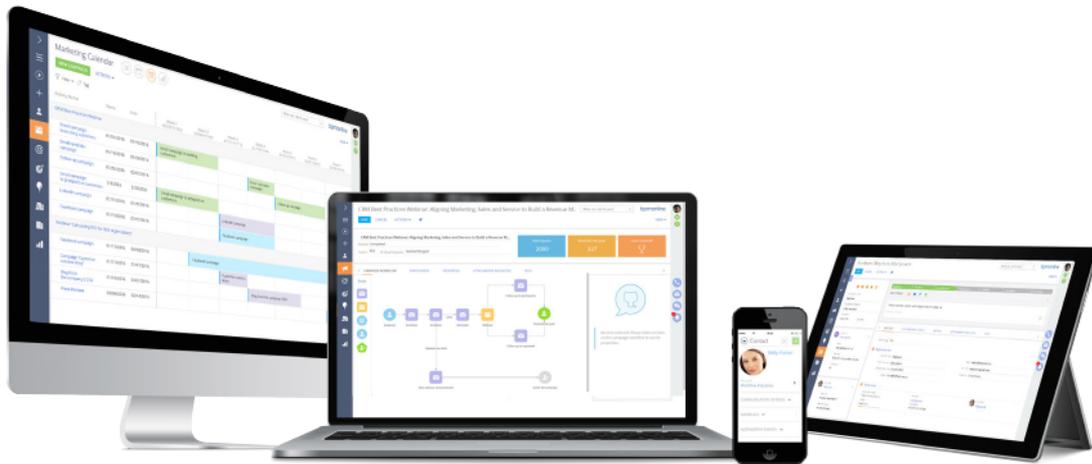
## Bank sales

The system to manage end-to-end sales processes of financial products and services to the bank's corporate clients.

## Marketing

An innovative software for bank front-office and contact center management.

Powerful CRM designed for corporate and retail banks and financial institutions to manage a complete customer journey and enhance their customer experience.



## ABOUT BPM'ONLINE

Bpm'online is a global provider of award-winning intelligent CRM software that streamlines customer-facing processes and improves operational efficiency. The beauty and the core value of bpm'online products is the agility to change processes faster than ever and align service, sales and marketing on a single platform. Users love bpm'online's engaging interface with a social look and feel, free from redundant information to keep them focused on what's relevant. Today, the company serves thousands of customers worldwide.