

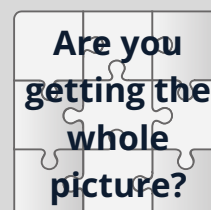


Real Experiences with APIs in Treasury

Treasurers & API's

- Peer group discussion
- Current usage
- Questions & answers
- Concerns
- Commentary

TREASURY PEER REPORT



JUNE 2021

A joint ComplexCountries
& DBS initiative



Live more,
Bank less

Call dates: April 13th 2021 & April 23rd 2021

Expert panel:

John Laurens Group Head, Global Transaction Banking, DBS Bank (bio on page 16)

Mark Troutman, Group Head of Sales, Global Transaction Banking, DBS Bank (bio on page 17)

Damian Glendinning Expert chair. (bio at end of report)

Participants:

Session 1: Senior Treasurers from Europe and the USA.

Session 2: Senior Treasurers from Asia and Europe.

- **Session 1:** An interview followed by a Q&A between peers and the expert panel. This report covers the Q&A discussion.
- **Session 2:** A peer group discussion with commentary from the expert panel.
- **Treasury Peer Calls** are conducted under the 'Chatham House Rule' Details of participants are not disclosed, not all the discussion is reported and some elements redacted.

HOW TO READ THIS REPORT. The report has been expert compiled and edited to replicate the information exchange and flow of the discussion whilst maintaining the confidentiality of participants. Sensitive information is sometimes excluded or redacted. Each participant is represented by a number but questions and comments are not always attributed.

DAMIAN GLENDINNING'S COMMENTARY

We were pleased to host two sessions with our peer group members and John Laurens and Mark Troutman from DBS Bank in Singapore. We selected DBS because they are making significant progress in the digital space, and have the good fortune to have recently revamped all their internal systems, making it easier to align them with today's technology.

The sessions followed on from our technology series, where treasurers agreed we are moving to real-time treasury and instant data – but felt that they did not have the budgets, and were not in a position, to drive this change. According to John Laurens, a large budget is no longer required – and these changes are often coming into the business outside treasury. The discussions were lively: it is possible that they show the path forward.

The game changer, according to John, is APIs (Application Programming Interfaces): they mean data can be brought in from many different systems in real time, and used to enhance speed and efficiency. A lot of the discussion focussed on APIs, but they are a means to an end, not an end in themselves. Most treasury activity is about gathering information and processing it. APIs are simply a quicker and more efficient way of doing this than many traditional approaches.

Business change is happening

Many treasurers link real time payment information and processing coming into their businesses with retail operations, especially on-line sales. There is also an increasing shift away from traditional distribution channels to direct sales, especially via the internet: COVID 19 has accelerated this. As a result, many of our members link real time data to B2C; it does not apply if your company is B2B.

Others see benefits to real time data, but view it as a "nice to have", with a weak business case.

John and Mark's experience tells a somewhat different story. They have handled many cases where initiatives have been taken elsewhere in the business, and treasurers have had to handle the fallout. On-line sales are an obvious example, but there are unexpected situations. In today's world, competitive differentiation is often a question of customer experience: one insurance company has linked its systems to on-line travel databases. When a flight is delayed for reasons covered by travel insurance, the insurer's internal IT systems automatically trigger an on-line payment to the traveller, who is notified by SMS. The result is that the payment is often received while the traveller is still stranded in the airport, and before they have even filed a claim: this kind of positive customer experience drives repeat business.

It is understandable that most people doubt whether the benefits of real time treasury justify a large investment, or a large project. DBS's experience is that, with the use of APIs, it is not a large investment, and treasurers who have a real-time view of their cash and the payment pipelines find that they gain credibility with senior management, and improve their processes. Also, younger generations assume that all information is real time, while we are all used to having real-time data and controls on our personal bank accounts.

The IT Investment

Most treasurers struggle to obtain a significant IT investment. In any case, the treasury processes are the final stage in a long process which goes through many other functions and systems, most notably the ERP system. Most treasurers do not see themselves justifying a major IT investment.

Again, John and Mark have a different experience. It is difficult to put a precise number on an implementation involving APIs: there are too many different situations. But DBS's experience is that the cost is usually in four figures, i.e., below US\$10,000. If it goes above \$10,000, it is still usually a long way from being a six figure number.

Equally, most treasurers are wary of setting in motion a large project to install a major IT system. Again, the experience of APIs is that a large investment is not required: as they involve getting the information which is needed, where it is needed, when it is needed, they typically involve a number of small-scale, incremental, actions. Often, over time, the existing heritage large-scale systems simply fall into disuse, as all the data is being provided via the APIs, and processed elsewhere. API based solutions often continue to exist alongside host to host payment systems, and they can be used with most TMSs.

How to handle APIs: security, standardisation and controls

A major concern is the proliferation of APIs: most treasurers see difficulties in managing libraries of them.

John and Mark understand this concern, and hope that, at some point, the banking industry will come up with some form of standards – this is a significant benefit with SWIFT. Today, DBS manage a library of about 500 APIs for their customers. However, most of the APIs they provide are focused on the notification of incoming payments – the top 20 APIs are reasonably consistent.

DBS expect that, at some point, large corporate customers will come to the bank with their own suite of APIs, and require the banks to handle them, and manage the resulting complexity. One of the participants is already doing this, though they have not yet made it a condition for doing business.

Security is always a concern with IT systems, but APIs are usually relatively simple and have a single purpose, which makes them easier to monitor. More important, they enable new forms of control. We are now all used to receiving notifications and providing approvals on our mobile phones when we make purchases with our personal credit cards: we can expect to see more real-time exception reporting on our corporate accounts.

Managing Change

A major takeaway from the discussions is that this technology moves us on from the world where you need to make a huge investment and drive a major project, for which it is very difficult to build a business case.

One participant found that they could not implement APIs because they were waiting for their TMS provider to install a major update to enable them, while another, who does not yet have a TMS, wondered whether they really needed one, if they could get all the information they need reported directly into their own treasury dashboard.

The important thing to remember is that what matters is the information: the means now exist to get information from many sources, usually in real time, and process it how you want. And this can be done piece by piece, with a low budget. Each mini implementation will either show its benefits, or fall by the wayside.

Conclusion

If John and Mark are correct, we are on the verge of a significant change in the way we work. As treasurers, we are naturally conservative: if we have processes and solutions which work, why take the risk of changing them, for benefits we have not yet seen?

At the same time, we have all seen the changes brought about by mobile phones and the internet – there is no reason to believe treasury processes are immune.

Watch this space!

Session One

PEER GROUP Q&A SESSION WITH JOHN LAURENS AND MARK TROUTMAN

PEER A

Question, Peer A: I'm just curious, beyond the core API's that many banks are doing for balance and transaction reporting, as well as card management, merchant services, what are the other areas that we're seeing banks operate institutional API's, maybe around account management, signer management, interest conditions, things like that?

Answer, Mark Troutman: We have already developed c 500 APIs at DBS and they include a range of collection types and payment uses, plus a number in the trade financing and merchant financing space and we are in the process of developing some functionality in account management. To your point about eBAM (electronic bank account management) and liquidity management / interest conditions they are similarly in development.

Question, Damian Glendinning: I think you're getting into one of the things that we discussed in preparing the session. Does this lead the bank potentially to start becoming a more general IT provider going forward?

Answer, John Laurens: I think that's right. Without perhaps getting into too much detail. But in terms of software as a service, we've been able to develop the sort of capabilities we've been talking about over the years. And could we play a role? Certainly, we've had interest from corporates big and small, even down into the SME asking if we could help with broader sort of systems connectivity, and maybe API based connectivity that isn't necessarily directly related to finance. So as a potential adjacent revenue stream for ourselves. So yes, indeed, it is a possibility.

PEER B

Question, Peer B : How do you see ERP providers and TMS providers keeping up with all the APIs that are coming out - it's very difficult for them - what are your views?

Answer, John Laurens: I agree. We have gone through a process on our own platform of moving from monolithic platforms to micro services and some of that doesn't look like a typical SAP set up. However, clearly SAP are moving to the cloud and it will be interesting to see how what some describe as a monolithic platform will be broken up into a more micro services base. I think if we look back over the years at the connectivity into SAP and the generic mega files and super sets of data which still exist today in terms of bank connectivity but don't really have a place with today's API based connectivity, it's computationally wasteful and uses data in a wasteful way by providing super sets of data when only parts of the data have a use. So I think there will be increasing usage of API connectivity into either the ERP and other sort of enterprise wide systems.

Comment, Mark Troutman: Just to add, if you come away from the bigger ERPs and into the TMS systems and portals like 360T or FXall they are ready now with API connectivity with both the corporate and provider side

PEER B continued...

Question, Peer B: We're dealing with multiple banks across the globe and wondering how we should handle the different API's. I don't mean the different API's in terms of processes, but the way they're set up per bank to maintain them on our side. Any advice on how to do that?

Answer John Laurens: I think that is a very good question. Let me answer by giving a view from where I sit today. I can see a time where corporates are not going to be interested in using bank proprietary systems in order to manage their bank account relationships across however many banks they use. API's will enable a company's systems to talk to the suite of banks that they deal with and you won't think about having to use bank X's host to host solution or bank Y's format. Without getting into a technical conversation, I think corporates will set up APIs to talk to different banks for different purposes or based on different criteria. As time goes by, I think large MNCs will be able to get to truly bank agnostic solutions with their systems talking to various banks based on API configuration.

Question, Damian Glendinning: If there are changes to the underlying systems, can they cause the APIs to fail?

Answer John Laurens: A lot of what we have talked about is where DBS has published an API and the corporate has consumed it. I think we will come to a point where larger multinationals such as [redacted] will publish their own APIs and then say to the banks 'if you want to provide services to us then you need to accept our APIs.

Question, Peer B: You don't see companies, for example SWIFT was mentioned earlier, that play this mailman role maintaining the APIs?

Answer John Laurens: So, if we think about the various SWIFT bureaus that work off the back of the SWIFT ecosystem - would there be a similar need in the API space? I think less so because it's far easier for your (corporate's) own IT teams to support the work with APIs. Also, for example looking at DBS as just another business with our own commercial objectives, we have gone in the last five years from an 85% outsourced model to 90% plus insourced because we see IP in the technology that we see as important to have as part of our own internal shop. I think, no matter what industry you're in today, we are all in some shape or form going to be tech shops, and are going to want to safeguard that IP. So I think that will also be a driver in terms of less use of bureaus as intermediary providers.

PEER C

Question, Peer C: The only question I would maybe have is, do you see any sort of regions in the world that are on the forefront or vice versa, any countries where you could see this will take a few more years before this becomes a relevant technology?

Answer, John Laurens: We have done some work on digital readiness which includes the use of APIs. Even within Asia there's quite a spectrum of degrees of readiness and embracing new technology. Hubs like Hong Kong and Singapore are further ahead and other markets are lagging behind. We included the UK and the USA in the survey. The UK is at an early adopting phase and the USA is behind the UK. Some of this is due to domestic payments infrastructure: for example, the UK has faster payments which has driven API usage.

PEER C continued...

Comment, Mark Troutman: I think that in the USA when instant payment gets launched in the next year or two I think we will see a rapid rise in readiness to engage in this area. But we have worked with a range of US companies here (Singapore) and they are moving full steam ahead. So I'd say Asia is furthest ahead. In Europe, even though they have SEPA and PSD 2, I haven't seen much widespread adoption. The Middle East and Latin America are furthest away.

PEER D

Comment, Peer D: This is quite interesting for me because we were not very up to speed with this. We are currently focused on host to host and developing the capabilities of our TMS because it is bank agnostic - but we aren't there yet. I am a bit conservative when it comes to APIs, even the plug and play ones. Although Asian banks are ahead of the game, in countries like India it seems they are not yet tested and we are still working to maximise our TMS on the collection side in terms of flow codes and identification of receivables etc. We have received lots of offers from banks in Asia and India but we aren't ready yet. There are so many issues that need to be developed in a bank agnostic way. It's good to know what's out there but we haven't engaged with any banks. We have received lots of offers from banks in Asia and India but we aren't ready yet.

Answer Mark Troutman: So we've seen companies like yours, where there's a distribution model or a set of distributors, being able to tie in, whether it's through the use of virtual accounts and instant collections, so that you get the complete reconciliation instantly. And we've seen the use of API's both in engaging the supplier side and in the collections from distributors,

Comment, John Laurens: With the UPI infrastructure in India, it's definitely worth looking at in this context.

PEER E

Question, Peer E : So this is very interesting. My observation has been that whenever APIs are involved, you have to involve your internal IT team and not in the case of banks. But in the context of other vendors, they claim their API is a very simple plugin, but when we went to our internal IT, they came back with 100 hours work. So there seems to be a discrepancy. When you go to your internal IT team, it turns out to be much more than just simple plug and play. Did you have that kind of experience with your bank product? Or your bank API's?

Answer, John Laurens: In terms of our experience with customers, if one looks at the use of API's as a means of connectivity, the level of effort, stress and bottlenecks is lower relative to traditional file upload activity. It's definitely an easier and smoother journey for both corporate and the bank, in our experience. And going back to what I said to peer B earlier, at some stage I think the corporates will issue the APIs and the banks will have to consume them if they want their business.

PEER E continued...

Question, Damian Glendinning: I think you are both being very polite. In my experience, when IT come back with a quote like that, it's really their way of saying 'No' and they are deliberately over-stating. Do you find that is the case or can it really be such a big deal?

Answer, Mark Troutman: I have seen a range because everyone's tech environments are different. Some aspects of their platform can be supported by 3rd party vendors, some of it is in house built. We do sometimes see the initial high level estimate which seems outrageous, but when we get into the detail we have done stuff so fast it's mind blowing (to me anyway) For example we have done some very complex engagements, for example (it's public knowledge) we did an engagement for Haier during lockdown last year in China. We had to build 15 API's to integrate their distributor and logistics management platform and we did it in 15 days. So it is complex? And does it need to be? I think it's about getting everyone involved to rally around what needs to be done.

PEER F

Peer F, Comments: For me there are two things, firstly as Peer B was saying, looking at standardisation of APIs across banks, we certainly don't want a lot of API connections with a lot of individual tailoring. Secondly, from an internal systems side, we have an internal API library to exchange information between systems. Within the treasury at [redacted] we provide three different FX APIs where internal systems consume FX rates and processes in different ways.

We see APIs as a standardised way to share information across systems, internally or externally. We are currently planning API connections between our TMS and our cash management system so they can be integrated on a more real time basis.

So my question is - do you believe that there will be a standardisation of APIs when it comes to things like information on payments, similar to what is standardised in SWIFT?

Answer John Laurens: We have seen efforts in some markets. For example, the MAS produced a very thick tome on API protocols and standards - but it still very early days and standards evolve. We are expecting someday soon to receive an RFP from a corporate that includes the APIs that the bank needs to consume and it will be interesting to see whether that drives standardisation or creates a greater variety. Hopefully standardisation.

Comment, Damian Glendinning: ... and who deals with the variety: is it the bank or is it the corporate? I think we know...

Comment, John Laurens: I think if we look at what SWIFT has done in terms of providing standards as opposed to the actual messaging it has been valuable over the years. But with all of these new 24 / 7 immediate payment systems, and as each country comes along and produces one with another bell and whistle. There is really, I think, for us all across this industry, to try and get more standardisation across that space. But that's a topic all its own. Right. I think that I very much agree with the sentiments, but it's a separate and very big topic.

PEER G

Comment / Question, Peer G: I think the standardisation is a very interesting topic because for any changes, I need a positive business case, so if I end up doing what I already do, it's difficult for me to see when or how I should go into this mode. I clearly see some benefits especially for example on account statements, getting information as soon as a payment is received. But it probably depends what business you are in whether you need these updates constantly or whether you are a more batch based business where you don't need immediate updates of customer payments. However that will change for all of us once our ERP system is able to handle it. So my question is - when will this in reality be more widespread?

Answer, John Laurens: I think it's quite widespread today at least in Asia Pacific. If I look back into our sales pipeline over the last few years, we have seen the growth in requirements for API based connections and now, it's a large number across all the work we are doing with customers. Possibly, we aren't typical of all banks and there are regional differences. I have been in this industry for many years and there's always a lot of talk about what's 'just over the hill' but it feels like it has actually happened in terms of APIs bringing transformational change and building new customer experiences.

Comment, Peer G: I'm happy to hear that. But in reality, it is better than where we came from but it still requires a lot of work to get there.

Comment / Question, Damian Glendinning: Do I detect some scepticism on your part about the value of real time treasury information? For example, does it really matter if you don't know immediately that you have received a payment? - I think that's a very important question.

Answer, John Laurens: Yes. Clearly, if one is getting an immediate credit notification and not needing to make immediate use of it, then that's superfluous. But if you're in a business that sells on 30 day terms, via invoice to wholesalers, and you decide to go down a path of giving customers an opportunity to go online. And let's face it, there's more and more that has been bought online than we would imagine not so long back. And that creates a new sales channel, then the need to know that you've been paid before you confirm the order becomes an imperative. So I think it depends clearly on what the underlying need is

Comment, Peer G: I fully agree when you're a consumer business, it really makes sense to add this information as fast as possible so that you know where you can ship your goods. But, we are not in the consumer business.

Comment, Mark Troutman: During lockdown, we saw quite a big pivot towards contactless fulfilment, and just not in the consumer facing space. We're seeing companies that are either in highly cyclical industries, with big working capital variations where being able to identify collections coming in quickly is critical.

Regarding an earlier comment, I've seen many companies suddenly change their entire Treasury ethos to really focus on cash. And so I do think, having information integrated in real time, will become necessary, even if it's not required right now.

PEER G continued...

Comment, Peer G: I agree that over time it will become the norm, but for a shorter horizon, I am sceptical as to whether it will move that fast for non consumer related businesses.

Response, John Laurens: I think, there's the benefit of instantaneous information or payments. Maybe the benefits or need is different, for example, ease of connectivity and having your systems talk to bank systems with less intermediate activity be it managing files or different online banking systems.

Peer G: But there are already solutions out there. We are using one where we outsource all that (connectivity). We just send an SAP file to our partner and they simply make it work.

Question, John Laurens: so you are providing an i-doc to a provider and they are doing the work for you. Does that raise questions about cyber security, fraud prevention? Do you want fewer hops in the process? There could be a number of different use cases.

Answer, Peer G: I can see that if someone offers some kind of treasury service, it could be a TMS where we can easily see all relevant data - then why APIs?

Comment, Damian Glendinning: I fully understand your scepticism about whether it's really worth the investment. So I think the key message - John and Mark, correct me if I'm wrong - is that it's actually already here, it's already possible. And while there is still an investment, the size of that investment has gone down dramatically. Would that be a correct summary?

Response, Mark Troutman: Yes, very dramatically.

PEER H

Comment, Peer H: I just wanted to say, on the payment side, I am a bit of a sceptic, faster is good, cheaper is great. But I'm actually willing to slow payments down, because I need to aggregate them and run them through an approval workflow. I'm doing my best to defend against fraud. So does anybody else see a gap here, I feel like it's a Tesla, but the roadways from, 1930 or something. So it's great to have this new fast technology. But you're either gonna have to build or buy some type of front end, that's going to aggregate everything through a workflow. I just finished a three year project in 25 countries. Our big thing was running the workflow through a non bank platform. So I'm a bit of a sceptic. It's great, what's going on here, but there's something I'm missing. I'm just missing how to integrate this, and bring it all together.

Response, Mark Troutman: You have highlighted something that we all have to really double down on these days, and it is, unfortunately, fraud. An example of where API's help on the payment side is in the insurance industry where you want the consumer to have a good experience and you need tight controls to make sure payments are timely and valid. Some clearing systems allow for the beneficiary bank account to be verified before payment gets made. We can check to make sure that it's going to the right account up front. Validating accounts also means there aren't any rejects. So we get a much cleaner operations process. It's STP. There's no post reject operation process in the finance team and we've eliminated the potential miss-route at the same time.

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PEER H continued...

Comment, Damian Glendinning: I can just add to that .Again, it is a fair amount of process reengineering. But one of the potential benefits of all of this is making sure that all the checks and controls are done, real time. When, of course, it's much easier to fix things. And that can actually have a whole lot of knock on benefits.

Unfortunately, we have run out of time. Many thanks to everyone for your very active participation.

END**Session Two****PEER GROUP DISCUSSION WITH COMMENTARY FROM JOHN LAURENS & MARK TROUTMAN****ONE**

- We have been using APIs for a few years for
 - TMS connectivity
 - FX dealing platforms
 - Confirmations
- A primary driver for upgrading TMS last year was to be better prepared for API connectivity.
- Focus on two areas:
 - One: real time bank balance reporting
 - Two - payment initiation for instant payments (if you do this via SWIFT you still have a delay in execution)
- Also looking at signatory management for bank accounts

Comment, Damian Glendinning: In previous discussions we have talked about the benefits of real time connectivity, but people have said ' I get it - but I don't control the IT budget - what we are seeing with APIs is that it's fairly simple from an IT perspective and is low cost. It also leads to a significant transformation In the way we do business.

Comment (PEER THREE) - regarding the cost, it's worth mentioning that as (ONE) mentioned, we need to do a TMS upgrade in order to utilise APIs - that's where we are at [redacted] - you need to make sure you are at a certain level of technology before you can start using APIs.

Comments, John Laurens: regarding cost & TMS connectivity,

- reference digital readiness survey - key adoption challenges, cost was the second lowest factor across US, EU and Asia.
- In terms of DBS's experience in moving to cloud based infrastructure, cost has not been a material factor in DBS's ability to publish or consume APIs internally or externally.
- Regarding TMS & APIs we are seeing most corporate systems shifting to the cloud and at some point maintenance will be withdrawn from non cloud applications.

PEER ONE continued...**Comments John Laurens**

Re (ONE) - comments about real time bank balance reporting & instant payments. Looking at the call activity on DBS from customers:

- Inward credit notifications - which are key for ecommerce transactions & instantaneous customer (of client) experience
- Polling FX rates
- Immediacy of information is important - API connectivity into banks is one half of the equation, the other half is the bank's connectivity into 24/7 real time payment capabilities that are increasingly available globally. This is a powerful combination in terms of transformational change - not just in treasury but in commercial models.

Question to ONE- Damian Glendinning: have you noticed that as a result of implementing real time balance reporting, that it has changed the way you do business and impacted business processes?

Answer, Peer ONE

- The key point is having the information you need readily available when you need it. We will still continue to have our regular end of day processes, as we need that from a control perspective. But we are less dependent on cut off times - so for us the biggest benefit is flexibility. We are less dependent on legacy infrastructure.
- Our business is also becoming more geared towards direct sales, so we are starting to get collections from end customers (previously via distributors) and we are looking at how we can avoid using credit cards and other legacy payment types that are expensive.
- We find that the real time payment systems in different countries are quite different, so it is difficult to handle them all with a single global process - but our processes are moving to real time and APIs are key to that.

Peer Question: Which countries work well from a real time payments perspective?

Answer, Peer ONE: We are at the early stages, but we have moved to direct sales in places like Australia & Japan in Asia and UK and Germany in Europe and all the instant payments / clearing systems are different - and we are struggling to find commonality between them. Each market is large enough to justify a standalone solution - but each one is different. This might become an issue with smaller markets.

Comment, John Laurens: With each individual country wishing to add their own bells & whistles to their domestic instant payments infrastructure has resulted in a lack of standardisation - and that's a challenge. SWIFT did a good job of implementing standards. I hope as an industry we start to see some standardisation across the new domestic 24/7 structures over time.

Question, Damian Glendinning: You mentioned that APIs are transformative in the B2C space - as you go towards direct sales - do you think they have a role to play in B2B as well?

Answer 1, Peer ONE: I think this is the first time we have seen an innovation starting in the consumer space and moving to MNCs. Before (in treasury) it has always been the other way. Banks are already routing some larger payments through instant clearing, so I think division between payment types will become redundant over the next five years. It's definitely the trend and it isn't going to stop. It will impact all businesses eventually.

PEER ONE continued...

Answer 2, Mark Troutman: Certainly real time is highly relevant in the B2C space, particularly in areas where customer experience can lead to competitive advantage, for example in insurance and retail brokers (especially after Robin Hood). But we have also done work in the B2B space, for example in work we have done for companies that run auctions for steel, where we have married virtual accounts with instant payments, APIs can deliver powerful support to specialist industry specific challenges.

Question, Damian Glendinning: Regarding letters of credit (LOC) - they have always suffered from the problem of incomplete information - are you seeing any developments here?

Answer, Mark Troutman: We have developed a lot of APIs on the issuance side. It doesn't solve all the problems but it does deliver the bank connectivity between the corporate and the provider. However physical documents etc are still required. But it is certainly connecting different platforms, for example - agribusiness..

PEER TWO

- We have used APIs - it depends how you define them.
- We have APIs to connect between our TMS and trading system and our different banks.
- We are rolling out a payment factory which will have direct links to banks
- A new netting module will replace a stand alone system with file upload - SAP will also feed into this.
- We are starting to look at real time cash & liquidity reporting in our TMS, we currently have previous day balances,

PEER THREE

- We would have started using APIs earlier but we were limited by our TMS (Quantum) - so we have had to use other solutions such as robotics.
- The ability to connect with APIs was a major driver in upgrading our TMS and will give us the flexibility to start using them.
- We have spoken to a number of our banking partners to find out what's available in terms of a 'standard toolkit'. And it seems the top 20 APIs offered by banks are the same across most banks.
- When our TMS upgrade is finished we can start looking at what API connectivity is appropriate for us.
- Regarding the B2B / B2C discussion earlier, it strikes me that we are all consumers and are accustomed to immediate payments and it seems only natural that we should expect this to be the case in the business world as well. It will be driven by millennials and generations Z'ers - it (real time payments) will be across the board regardless of what area of business you're in.

Comment: Damian Glendinning - In my experience in dealing with B2B distribution channels, where the amounts can be significant, knowing a payment has been received the same day is a real benefit.

Response, Peer THREE: We've been working on a project which has created a specialist B2B marketplace which is run on a blockchain - it's all instant, apart from the payment. We were asked if they could use cheques - which wouldn't have made sense - this is a clear case where APIs should be used to deliver real time payments so that transfer of ownership does not take place until payment has been confirmed.

PEER THREE continued...

Comment, John Laurens: We have talked about the consumer trends driving change in large corporates and also the millennials / Gen Zs who are coming into the Treasury profession with not just an assumption, but an expectation that everything will be instant. I think another driver is the possible convergence between B2B and B2C. We have had discussions with large consumer businesses in Europe who have created sub brands which sell directly to consumers both via physical outlet and online and payment is a part of the customer experience in both cases - but we are seeing treasury being pulled into this process very late and they are having to play catch up. So as other parts of the business look to embrace new technology to create new revenues and customer experiences - treasury will need to keep pace.

Comment, John Laurens: (THREE) mentioned a top 20 API tool kit offering from banks, ref PSD requirements for example. But what we are seeing in the Asian markets is a lot of creativity around the range of APIs that are being developed - creating unique solutions for individual company needs.

Comment: Damian Glendinning - This leads to two issues:

- Our sales team direct built a credit card solution for online sales but didn't want to spend money developing all the security - we learnt a very expensive lesson. That is a different topic, but it's important for treasury to be on top of these issues.
- The other point is how do you keep track of and control all the APIs that your company is using? Is that something that you are concerned about?

Answer, Peer THREE: Not at the moment because we only have a few in mind. But we certainly wouldn't go down this route without a central way of managing via the TMS. We won't use APIs on peripheral systems, everything will be centralised. But we see this as a light touch way of connecting two different systems rather than a fix all for everything. APIs will be the right solution in many cases but in others they may not be appropriate - you shouldn't assume they are a solution to everything - if you do that you could well have too many.

Comment, John Laurens: Agreed, the use of APIs should be driven either by an underlying problem or an opportunity. We run co-creation workshops with clients around specific challenges and opportunities, and we find that APIs are an enabling component of a solution, but not the starting point.

Comment, Mark Troutman: Maybe it's a bit more relevant in the B2C space, but we are doing a lot of work with fintech companies who are building products using our APIs - every time they enhance their products, that leads us to incorporate more APIs or to create something new. What we are finding, is that because the technology is so nimble, development cycles are becoming shorter (months or quarters). We are seeing recurring engagements, rather than build it and leave it.

FOUR

- We are starting to use APIs - eg for FX rates from Reuters into ERP & TMS - going live next week.

PEER FIVE

- We have revenues of [redacted, >USD 10 billion], but we are low on treasury technology
- We have connectivity between our ERP systems & our bank.
- We don't have a TMS - cash positions are downloaded daily into Excel and we use MT 940s for non main relationship balances.
- We are growing geographically and this has meant adding new relationship banks - which makes our current set up more challenging.

Question, Damian Glendinning: With all the connectivity that APIs provide - does this mean you really need a TMS? - A TMS is a way to collect data and act as an interface.

Answer, Peer FIVE: I think that's why we have never done it up to now. We have managed to do what we need to without one. We haven't grown by M&A, so have a single ERP and we have had a single cash management partner bank. We are a very lean treasury team (>10 people globally).



DBS is a leading financial services group in Asia with a presence in 18 markets. Headquartered and listed in Singapore, DBS is in the three key Asian axes of growth: Greater China, Southeast Asia and South Asia. The bank's "AA-" and "Aa1" credit ratings are among the highest in the world.

Recognised for its global leadership, DBS has been named "**World's Best Bank**" by Euromoney, "**Global Bank of the Year**" by The Banker and "**Best Bank in the World**" by Global Finance. The bank is at the forefront of leveraging digital technology to shape the future of banking, having been named "**World's Best Digital Bank**" by Euromoney. In addition, DBS has been accorded the "**Safest Bank in Asia**" award by Global Finance for 12 consecutive years from 2009 to 2020.

DBS provides a full range of services in consumer, SME and corporate banking. As a bank born and bred in Asia, DBS understands the intricacies of doing business in the region's most dynamic markets. DBS is committed to building lasting relationships with customers, and positively impacting communities through supporting social enterprises, as it banks the Asian way. It has also established a SGD 50 million foundation to strengthen its corporate social responsibility efforts in Singapore and across Asia.

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John Laurens has over 30 years of banking experience and is the Head of Global Transaction Services at DBS Bank. In his role, John is responsible for DBS's transaction banking business including cash management, trade finance, supply chain financing and securities and fiduciary services. He has over 20 years of experience in the Asia Pacific region, having undertaken regional leadership roles in sales, product management, relationship management and corporate and commercial banking.

Before joining DBS, John led HSBC's Asia Pacific Global Payments and Cash Management business from 2007 to 2014. Under his leadership, this business transformed into a high growth and high performing franchise that produced \$2.2 billion revenues in 2013. Prior to his time with HSBC, John was with Citibank Australia where he was Head of Corporate Banking and also held senior transaction banking positions with Citibank, including Regional Head, Global Cash and Trade, Asia Pacific with responsibility for product management in Singapore. Prior to moving to Asia in 1994, he undertook a variety of roles in Europe covering relationship management, global custody, investment management and marketing.

John Laurens is an Associate of the Chartered Institute of Bankers. He served on the board of SWIFT from 2011 to 2014, during which he chaired SWIFT's sub-committee overseeing the establishment of SWIFT India, the first such local incorporation initiative undertaken by SWIFT. He is recognised as a leader in the transaction banking industry globally.



Mark Troutman is Group Head of Sales of Global Transaction Services at DBS Bank. Through a team of more than 150 sales managers and advisors in 13 markets, Mark leads the Bank's origination and solutioning efforts for cash management, documentary trade and open account supply chain improvements with clients in the large corporate, SME, multinational, financial institution and institutional investor segments.

Within his remit, he leads digital Engineering Sales and Treasury and Working Capital Advisory & Solutioning (TWCAS) practices, and recently completed a Sales Transformation programme for the business. Through Engineering Sales, Mark's team helps companies take advantage of the digital revolution and provides advice to companies navigating their own digital transformation agendas. His TWCAS team provides broad customer advisory and solutioning assistance to DBS clients in the creation and delivery of working capital improvement and treasury projects in Asia.

Before joining DBS, Mark was the Global Head of Corporate Sales for HSBC's Global Liquidity and Cash Management product group in London, where he led the strategy and development of corporate sales across the bank's Commercial Banking and Global Banking and Markets businesses. Prior to joining HSBC, he held senior roles in JP Morgan and Bank of America in the United States, Singapore and Australia. Mark graduated from Claremont McKenna College with a Bachelor of Arts in Economics.



Damian Glendinning is chairman of the CompleXCountries Advisory Board, with extensive experience running corporate treasury in complex markets. After 21 years with IBM, Damian joined Lenovo in 2005 as Group Treasurer, following the acquisition of IBM's personal computer business. He had spent four years as IBM's Asia/Pacific treasurer, in Singapore, and was their Director of Global Treasury Operations in New York. Damian is a fellow of the ACCA, and has a degree in French and Italian from Oxford University. He was president of the Association of Corporate Treasurers (Singapore) from June 2010 to July 2018.



Monie Lindsey is a member of the CompleXCountries Advisory Board, with extensive experience consulting to global corporate treasuries, global and regional transaction banks as well as related industry providers. Over a 25+ year career, she has held senior level positions, most notably with Treasury Strategies as Managing Director and Head of the London office. She has a CertICM from the UK ACT, served as a senior assessor for the UK ACT's advanced treasury certifications and served as a member of the EBA's Supply Chain Working Group. She has a degree in Economics from Randolph Macon Woman's College and an MBA from Wake Forest University..



Rupert Keenlyside is founder of CompleXCountries with over 20 years of experience in corporate treasury research and media . He founded gtnews.com in 1997 , establishing it's unique (at the time) editorial model as well as producing numerous research assignments and content projects for global banking clients. After selling gtnews the Association for Finance Professionals (AFP) in 2007 he worked for The Economist Group as director of product development for EuroFinance where he also acquired and ran the Commercial Payments International business (CPI).



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