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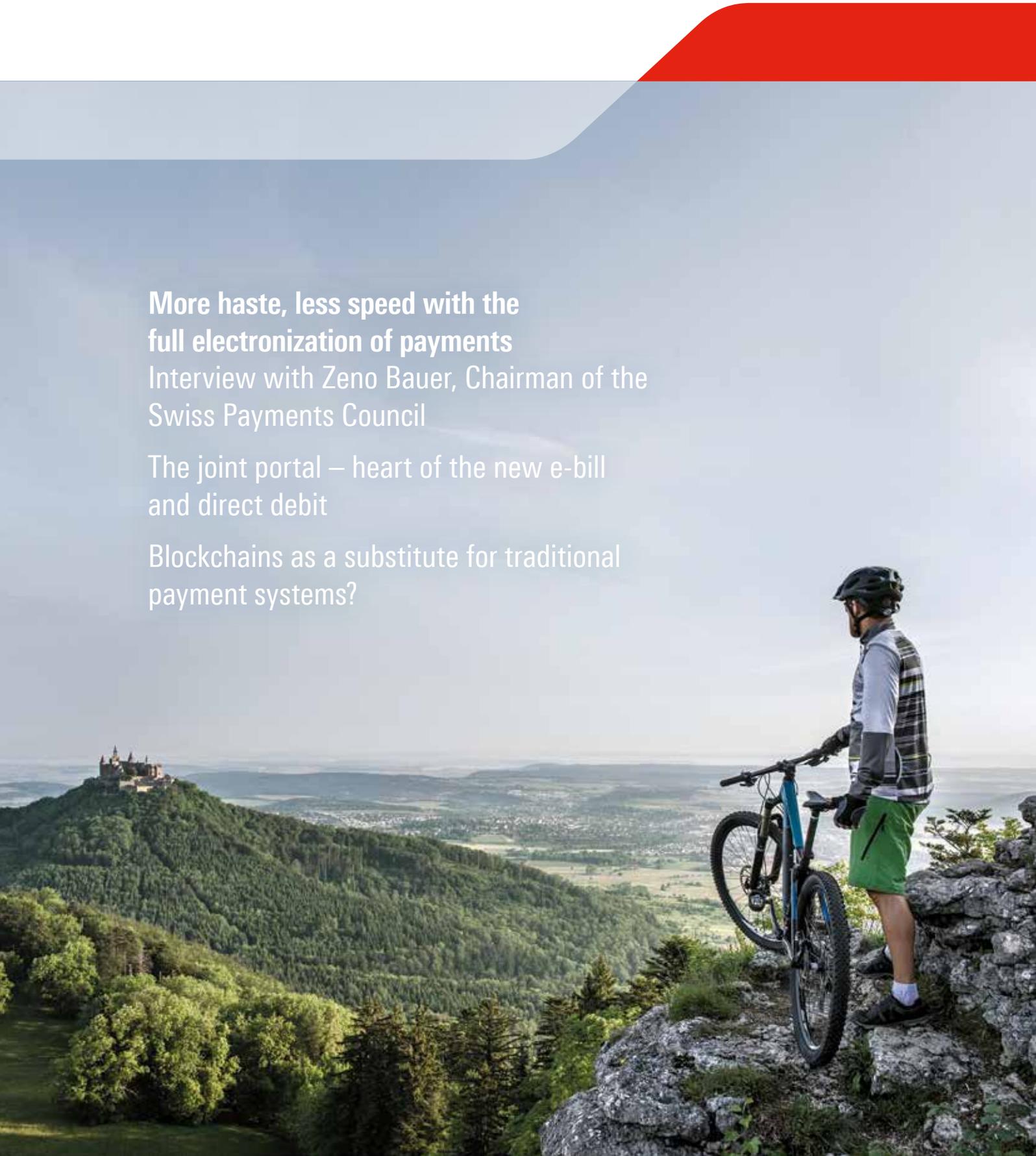
The Swiss professional journal for payments
Edition 66 | March 2016

More haste, less speed with the full electronization of payments

Interview with Zeno Bauer, Chairman of the
Swiss Payments Council

The joint portal – heart of the new e-bill
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"Wild young ones" are speeding up payment traffic

Not only banks are confronted by competition from young, agile and innovative competitors, the financial center infrastructure has since become a place where the only constant is change. What does that mean specifically for the strategy of SIX Interbank Clearing Ltd?

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The joint portal – heart of the new e-bill and direct debit

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New participant administration for e-billing

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Payment factory provides perspective

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Blockchains as a substitute for traditional payment systems?

Litecoin, Neucoin, Dodgecoin – there are now hundreds of blockchains, each with its own cryptocurrency. Behind each of them lie various strategies, ranging from the exchanging of financial amounts between individuals to the attempt to substitute national currencies. Are blockchains suitable for use in payment systems?



Armin Brun, Member of the Executive Board of PostFinance Ltd

Dear reader,

The starting gun has been fired. Since the beginning of 2016, the first customers in the Swiss market are being supplied with account statements and notifications in the ISO 20022 message standard. Along with credit transfer messages based on ISO 20022, which have been available for some time, comprehensive debtor and creditor processes are available for the first time. This is an important milestone in the process of harmonization of payment transactions and a reason to celebrate.

The first ISO deliveries also represent a success of the "Swiss financial center" model. Lawmakers in the EU forced the implementation of SEPA. In contrast, in this country the harmonization is an act of collective reason and an impressive example of the banks' will for constant modernization of the joint infrastructure. It is not merely a matter of course for the financial institutions of a country, which are more than ever in competition for customers and revenues, to choose to take such a step together and to also act together over such a long time span.

We have every reason to be pleased that the ISO world is now growing tangible. But take care: now it is matter of "keeping on the ball" – the next milestones are approaching! With the operational startup of euroSIC on the SIC⁴ platform, the first interbank messages have already been productively processed in the ISO standard. The migration to ISO 20022 between the banks and PostFinance and in the SIC system will soon follow. The preparations for this are well in progress and the positive experiences so far make me very confident.

We must still make considerable progress when it comes to the ISO offers for our end-customers. To date, only a few banks have provided their customers with specific information about the future offers or set definite dates for their introduction. Nevertheless, the end date for the current message standards is inexorably approaching. Only if our customers can use the new ISO messages by mid-2018 can the requirements for the introduction of the inpayment slip with data code be met. And only in this way can the expensive redundancies between the old and new world over a long period of time be avoided. A concentration of strengths and decisive action is needed. We now have an obligation to our customers and all partners. The harmonization has now reached the market and there is no way back.

All of us, the banks along with the financial infrastructure operator SIX, have underpinned our commitment to the joint schedule through the redesign of the website for the harmonization of Swiss payment traffic. At PaymentStandards.CH you can find all essential information about the introduction of the new ISO 20022 standard, the new inpayment slip with data code and the harmonization of the Swiss direct debit scheme starting 2019.

It is time to act so that Switzerland will continue to have a strong, and in the future, even more efficient payment traffic infrastructure. I thank you for your support.

Armin Brun
Member of the Executive Board of PostFinance Ltd

More haste, less speed with the full electronization of payments

Swiss financial service providers and their infrastructure operations seek to lead payment traffic into the future with projects such as LEON, which entails the electronization of bills and the payment thereof. Nevertheless, cash remains significant and the elimination of paper payment slips is inconceivable at the present time. Despite this, Zeno Bauer, in the following interview, Chairman of the Swiss Payments Council, expresses his confidence that development is proceeding in the right direction.

CLEARIT: The agreement between PostFinance and the banks to work together with e-billing and direct debiting announced on 24 November 2014 has since been approved by the Swiss Competition Commission. How significant do you consider this cooperation to be?

Zeno Bauer: The added value is that the various procedures will be merged into one. That much is clear. Synergies that have long since been requested by billers will thus be created. They certainly expect that any cost reductions will also positively impact the prices of the end product. This would enhance the attractiveness of what is offered. A single processing platform for e-bills and direct debits placed centrally at SIX and a central interface go hand-in-hand with massive process simplifications and therefore cost reductions for all parties involved. A standard user interface for all payers also makes it easier for billers to look after their customers, because billers are often approached for assistance and not the payer's bank. Added to this are simplifications in the registration process for both billers and payers. All in all, e-billing can be positioned more strongly in the market with the unified strengths of all involved parties. This should help e-billing to finally achieve the breakthrough.

Do you have specific examples?

A major share of payment recipients must send two files today – one to the PostFinance system and one to the banking system. This redundancy is eliminated by the harmonization. Furthermore, the biller can undertake his collections through a single interface instead of at least two, as is the case today.

“The LSV platform must be updated and the existing e-billing infrastructure at SIX is near the end of its lifecycle. This means that investments must be made in any case.”

Neither direct debits nor e-bills, with a total of approximately 6% of the total transaction volume, are major products in this country. Nevertheless, a great deal of money will be invested in the new joint solution. Where do you see the added value of the path chosen for the financial institutions?

There I must go back and point out the initial position. The LSV platform must be updated and the existing e-billing infrastructure at SIX is near the end of its lifecycle. This means that investments must be made in any case. At the same time, we must ask ourselves whether we believe in the future of the two products. Discussions have shown that the banks in particular have been, and continue to be, convinced about e-billing in a digital world. Our goal must be to make e-billing a component of the product portfolio of each and every biller. This requires that all ERP software providers support e-billing. Every e-banking customer should be able to pay bills on a computer or mobile device with one click or even issue a standing order to pay phone bills, etc.

We are nevertheless aware that great persuasive efforts must still be made until the e-bill becomes every day reality when shopping in a furniture store, for example, or when shopping online. In my opinion, the potential is entirely there for it to be used around the clock. We are not too far away from this goal. I am thinking of the planned two-hour operations time shift at the SIC system into the evening so that payments can be conducted during the usual office hours on the same day. However, to enable real end-to-end processing for real-time payments, 24 hours a day, 7 days a week, an appropriate scheme, process adaptations and probably only minor adjustments to the infrastructure at SIX would be needed. I am for the fastest possible implementation.



There are currently three different forms of the ISO 20022 pain.008 message in the Swiss Recommendations – one for the PostFinance scheme, one for the banks and a third for the joint scheme. How does this impact the financial institutions and their customers?

We are hard at work on this right now. In the medium-term, there should be just one form and a maximum of two versions, the current one and the previous version. The challenges particularly lie in the migration phase, which shall run through mid-2018. The three forms are necessary for a transitional period through the end of 2018. The goal is that just one common form is to be used starting 2019. This also means that as of 2019, at the latest, the interoperability between PostFinance and the other banks will be ensured for direct debit collections.

“We should not assume that we will be able to entirely do away with paper slips in the next few years.”

The strategic promotion of the e-bill is an important vehicle for accelerating the elimination of paper-based payment slips, which is what the financial center is striving for. How does the new development of the paper-based standard slip fit within this context?

If it were up to me, we would have already fully arrived in the electronic world. However, we must remain realistic: we should not assume that we will be able to entirely do away with paper slips in the next few years. Paper will still be with us for a while

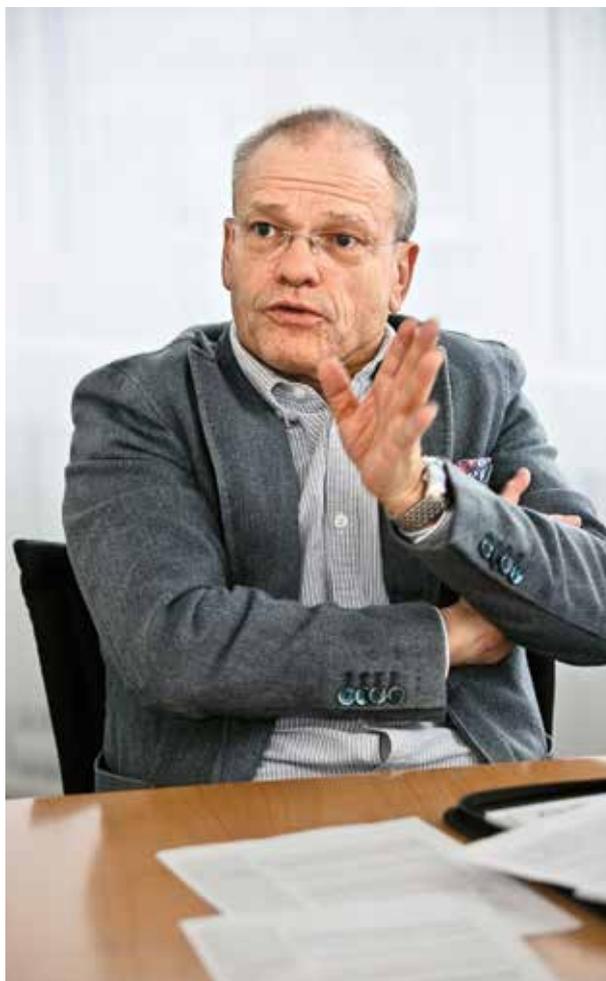
longer. It is thus sensible, along with the new developments with e-billing, to modernize the paper slip so that it can be processed more efficiently. Ultimately, it is up to the banks to pass on the cost advantages of individual products and processes to their customers through attractive pricing.

Cash money is still the dominant means of payment in Switzerland. Nevertheless the trend here is also moving in the direction of dematerialization. To what degree can the promotion of e-billing help support this trend?

Cash offers various advantages. It is anonymous, needs no technical tools and furthermore is a legal means of tender. Still, the trend towards dematerialization will continue apace in Switzerland as well – the Scandinavian nations are already quite a bit ahead of us in this regard. With the LEON project, we are ultimately striving to improve the electronic linking of bank accounts. Central for this effort is that the trend in payment traffic moves in the direction of 7/24/365. Of course, for various reasons, there must be an amount limit for the foreseeable future; it is no different today in the credit card field. Otherwise, I can also imagine the use of e-bills at the point of sale in retail shops, which would also contribute to the reduction of cash. For me, that is something that is part of the future.

An increasing dematerialization of cash money leads to more money flowing through electronic channels. The electronic clearing of payments between the banks will correspondingly have to be able to process far more than the current transaction volumes. This occurs today both through the central bank system and the Post circulatory system. In your opinion, is the central bank system, even in a scenario in which cash money is no longer dominant, the appropriate vehicle to process retail payment transactions?

I cannot imagine that the scalability of our system could represent a problem. With the SIC system we have a huge advantage in that there are practically no credit risks. If one day we should have transaction volumes that are much greater than what is usual today, then we would possibly have to reassess which system the transactions would have to run through. Does everything, down to the smallest payment, have to be settled in real time? So it is not a matter of scalability, but rather a question of fully automated processing. This must be absolutely and stringently guaranteed for future retail payments. For banks today, the scanning of payments and the rejecting of certain transactions are problems that simply cannot be ignored. Each rejection results in manual intervention, which is correspondingly associated with costs. We need to get a handle on this. That is only possible if the manual



Zeno Bauer

interventions can be reduced to almost zero. The “Faster Payments” project, which should be launched this year, will deliver solutions for future clearing. Today, I view it as an advantage that we can process small and large value payments through a single system. However, it is, of course, important to prioritize; it cannot be that a five centime payment has the same priority as a payment worth millions. Furthermore, at the current time, it cannot be properly estimated what influence the blockchain technology will have on the payment traffic processes of the future. And, who knows, perhaps one day alternative currencies will also assume an important role in payments.

“As soon as a furniture salesperson asks me unprompted whether I would prefer an e-bill, then we will be moving in the right direction.”

Promoting e-bills over paper bills is the superordinate aim of the harmonization project. Where do you intend to primarily approach this, among billers or consumers?

The consumer is currently not greatly impacted by this. We must apply the lever predominantly among billers. I think that we must gain even greater insight into the billers' processes in order to understand how we can further increase the degree of utilization. The integral view goes through SIX, which can offer everything, from payment transactions to electronic billing, to terminals at the POS. As soon as a furniture salesperson asks me unprompted whether I would prefer an e-bill, then we will be moving in the right direction. While that is not yet possible today, with LEON it will be. But there are still a few steps that must be taken until then. However, e-billing clearly has the potential to replace paper billing to the greatest possible degree.

Although the acceptance of paperless is steadily increasing, the direct debit authorization in physical form remains attractive. How do you intend to gain customers for electronic processes?

The direct debit is a well established product and is fully automated, down to the paper-based direct debit authorization. This means that the use of direct debiting over the use of cash money already represents a step into the world of electronic processes.

Nevertheless, by far, not all payers use e-banking, a logical, essential requirement for switching entirely to an electronic payment process. The constant improvement and simplification of electronic payment processes, the e-bill in particular, should convince users and encourage them to change. We are well on the way towards this, since a wide range of improvements will be delivered with LEON.

Tablets and mobile phones have become indispensable in all areas of life. How do you intend to address this trend towards mobility?

The e-bill is basically very well integrated in the mobile payment world. A click is all that is needed to approve a payment. All banks are applying considerable funds to simplify payments through tablets and especially mobile phones, and particularly to make them fast and available around the clock. Usability and especially the security of the process play a significant role towards this end. Unfortunately, the two aims are often at odds. From the payer's perspective, we must do all that we can to continuously improved user friendliness.

Direct debits and e-bills are part of the joint plans of the Swiss financial center to standardize payments. In your opinion, how well are the players prepared for the changes in terms of credit transfers, payment slips, etc.?

Up until a few months ago, we assumed that communication with bank customers regarding the harmonization of Swiss payments will occur solely through the banks. The situation has since changed somewhat. We now know that communication must be supported centrally in order to decisively promote the harmonization. Therefore, we have applied funds and established the brand PaymentStandards.CH, under which brochures for end-customers will also be published. However, it is also worth mentioning here that the payer as the end-customer is practically unaffected. Besides the banks, billers and software providers are impacted. We need to do even more here, particularly when it comes to declination of the harmonization to the end. Time is of the essence if we want to stick to the schedule that has been set. Everyone is aware of this.

Interview:

Gabriel Juri and Christian Schwinghammer
SIX Interbank Clearing

PaymentStandards.CH

Under this brand, the Swiss financial center has intensified its communication activities pertaining to the standardization of payment traffic since December. A new, handy brochure entitled, "Harmonization of Swiss payments – What companies should know", offers a comprehensive overview of the affected payment instruments, the reasons and goals of the joint project and the many advantages for companies in particular. The 24 pages contain plenty that is worth knowing along with practical checklists which should facilitate migration planning – regardless of whether companies use individualized or standardized software solutions. The free brochure is currently available in German and French. It is primarily suitable as a tool for customer advisors at financial institutions for communication with their business customers. All banks that participate in SIC, and which are domiciled in Switzerland or Liechtenstein, received sample copies in January with the option of ordering more. Two dozen banks have profited from this offer to date. So far feedback has been very positive, such as this: "A huge compliment for the extremely professional brochure. Not only is it wonderfully illustrated, but the topic matter is described simply and comprehensibly."

“Wild young ones” are speeding up payment traffic

Not only banks are confronted by competition from young, agile and innovative competitors, the financial center infrastructure has since become a place where the only constant is change. What does that mean specifically for the strategy of SIX Interbank Clearing Ltd?



With SIC⁴, the conditions are being created to be able to react to the megatrends within the framework of the central infrastructure.

When speaking of the strategy of payment traffic, the first thing that comes to mind is the digitalization of the customer interface. There the question arises of which strategies and services the Swiss financial center is using to react to new challenges. The Board of Directors of SIX Interbank Clearing has addressed the current issues and set the strategic direction for the next three years. They identified the megatrends of automation, digitalization and individualization.

External influences

Payment traffic is also influenced by external events that cannot be foreseen, or only with great difficulty. While the probability of such events occurring is very slight, they can nevertheless have a huge impact on a system and on the customer-bank relationship, and can create new societal and political parameters. This manifests, for example, in greater regulatory density as well in the political and economic pressure of foreign markets. Furthermore, banks are in increasing competition with new players, such as fintech companies. These companies are fast and agile when it comes to generating new products, services and overlapping platforms or bundling and combining offers from different financial service providers for customers. This can lead to a disintermediation of the banks. Conversely, the cost pressure leads to a concentration and shifting of the non-competition relevant services to the central infrastructures.

Future scenario

On the basis of these analyses, for each megatrend a strategic guideline was defined and concrete measures initiated. The Board of Directors has chosen a future scenario with a moderate pace. By doing so, it is assuming that the new trends will establish themselves slowly with

initially minor, but then steadily growing market shares. The established players are positioning their own services and products in the new markets (as first mover or smart follower), but are confronted with growing competition. The traditional business models continue to function, but must be adapted or updated.

For SIX Interbank Clearing this means that in the coming years:

- With SIC⁴, the conditions are being created to be able to react to the megatrends within the framework of the central infrastructure.
- Switzerland is harmonizing its payment traffic within the scope of the migration of payments to ISO 20022, is simplifying procedures, introducing new technologies and taking into account the development of increasing standardization and regulation.
- The planned operating times shift in the SIC system by two hours in the evening enables business and private customers to still initiate same-day payments during customary business hours. This is also prerequisite for faster payments. This scheme, which will be optional for participants, should enable end-to-end payment processing within minutes.
- The LEON project (see page 9) converges the direct debit procedure and e-billing into a single service.
- Potential areas of application for the blockchain technology (see page 14) shall be investigated.

Andreas Galle

SIX Interbank Clearing

The three megatrends

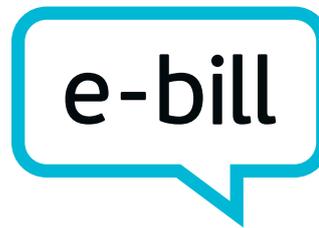
Automation: Processes at the customer interface are also increasingly being influenced by this transformation. A consultation firm estimates that the number of manual interventions in customer service will be reduced from 60% in 2014 to 30% in 2017.

Digitalization: Payment traffic in book money is already completely digitalized today. Payment media for the processing of retail and P2P payments, as well as cash transactions, are currently the focus of further changes.

Individualization : Companies are confronted with ever more competitors in a globalized world and must differentiate themselves. On the other hand, consumers want products and services that are tailored to them.

The joint portal – heart of the new e-bill and direct debit

The interbank LEON project is currently in the implementation phase. The requirements of all involved parties – whether banks or billers and invoice recipients – are being compiled at regular intervals and integrated within the project work. The joint portal for all financial institutions promises great success.



While direct debits have successfully established themselves in the market, the popularity of the e-bill is growing year by year and will experience significant growth in terms of the number of billers and invoice recipients as a result of the new joint portal.

“We consider the entire project to be very well thought out and the combination of new functionalities for end-customers and possibilities to enhance efficiency among billers make it very attractive for all participants.”

Zurich Municipal Electric Utility

Managing e-billing and direct debiting together

Billers can now submit all their claims – regardless of whether they involve e-bills with payment slips or direct debits – centrally at SIX. Undoubtedly, Credit Suisse and other banks will continue to offer their own submission channels, which are popular with customers. In this way the requirements of all customer sizes and types will be met.

“With the new standard central portal for e-billing, we can provide customers with targeted information about registration and answer support inquiries ourselves. The new portal also offers us space for marketing campaigns.”

Swisscom Schweiz AG

Advantages for end-customers

With the current e-billing solution, all functions are integrated in the online banking system of the respective bank. The advantage of this is that the customer remains within his accustomed environment when managing his e-bills. For customers who use e-billing at various banks, this may seem rather confusing, because there are different depictions of the same interbanking services to which he must reorient himself.

“A consolidated and central handling of all e-billing processes would ensure that everything is 100% the same for us and our customers, regardless of what bank the customer uses. This applies not just to processes and interfaces, but also the GUI, the look & feel, which the customer has in front of him...”

UPC

This feedback, which has been expressed very frequently in recent years, will be addressed in the new portal for e-bills and direct debits. Once the customer has authenticated himself in his online banking system and pressed the button for e-billing or direct debits, he will find the new e-bill and direct debit world clearly laid out in front of him, appearing the same way at every bank. In this portal the customer sees all his e-bills and direct debits and can manage and approve them for payment – his account at the bank through which he has entered the portal is available to him for charging. The customer can make individual settings there. For example, the level of detail in notifications can be configured or a standing order can be set for each individual biller, eliminating the monthly approval to save work and time. It goes without saying that the portal, with all its advantages, will also be accessible through mobile banking apps.

The financial institutions benefit too

The introduction of new functions today is very much dependent on individual bank planning and resources. Since all this will be centrally managed at SIX in the future, the banks participating in the portal need no longer make adaptations to their online and mobile banking systems. This will massively shorten the time to market of product innovations. This is an essential factor, particularly in these fast-moving times. For Credit Suisse, the portal is significantly contributing to the promotion and acceptance of e-billing.

Daniela Meyer-Brauss

Credit Suisse

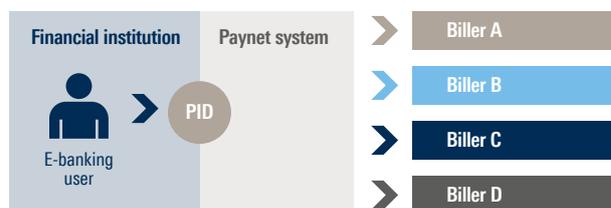
New participant administration for e-billing

The new “e-bill” is bringing a number of changes in service with it. Among them, the administration of participants within the network shall be updated and improved. The Paynet Identification (PID) will play a central role in the process.

Within the scope of the LEON project, the Paynet system that has been operated by SIX since 2001 will be substantially upgraded. The functionalities of the e-bill, which are currently integrated in nearly one hundred e-banking solutions, will in the future be integrated in one, central portal operated by SIX, whereby the financial institutions will be relieved of the maintenance of these functions in their online banking systems. In addition, these functionalities will be substantially expanded and a new direct debit solution implemented on this basis. The process of renewal and expansion of functions in this area will be unified, significantly accelerated and become less expensive, because SIX can undertake this centrally.

The Paynet Identification (PID) as billing address

Invoice recipients who are registered for e-billing through their financial institution’s e-banking system will be identified in the Paynet system by means of a “Paynet Identification” (PID). From the biller’s perspective, this PID is what would simply be called a billing address in terms of a paper bill. Therefore, it is the location where the biller sends his e-bill. Since the PID of the invoice recipient is also known by the financial institution and saved in the e-banking system, it ranges throughout the entire process chain as an identification feature – from billing through to payment.

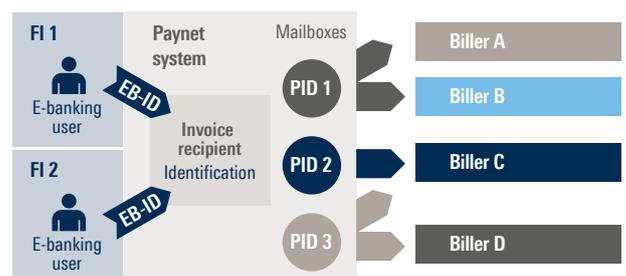


Current procedure

But what happens if an e-banking user has two different billing addresses? This happens already in very simple cases. For example, if a parent pays bills issued in the name of a child or if a spouse wants to pay bills issued in the name of the other spouse. The e-banking system must be “multi-client capable” to be able to handle such cases. This means that it will be possible for one and the same e-banking user to administrate multiple PIDs. This is offered today by several e-banking systems, while others always only permit a 1:1 relationship between e-banking users and PIDs. This can lead to problems especially when a biller switches from one bank to another.

The new solution and its advantages

With the new solution, the PID will be omitted in the data exchange between the financial institutions and the Paynet system, and thus as a continuous identification feature. Invoice recipients will be identified in a different manner than is currently the case (private persons will be probably identified by validated e-mail addresses). They will have the option of setting up one or more “mail boxes” in the system. These, in turn, correspond to what is the billing address on a paper bill and will be centrally administrated by SIX. This means that now no longer will the participant himself be identified, but his “mail box” with the previously established PID. E-banking users, on the other hand, will identify themselves to the Paynet system with an e-banking user ID (EB-ID), which is assigned to the invoice recipient in the Paynet system. Since an invoice recipient can have multiple EB-IDs, the multi-bank capability will be made considerably easier.



New procedure

From this somewhat complex construct, essentially three advantages will result in addition to the eased multi-bank capability: First, the invoice recipient can administrate his mail boxes directly in the Paynet system, whereby all participants, regardless of their banking connection, will be offered the same client capability. Second, in future, it will be possible to transfer mail boxes from one invoice recipient to another easily and securely and thereby retain all the existing relationships to billers (e.g. when a child reaches legal age and wishes to pay his bills himself). Finally, the fact that the existing connections need not be changed represents a significant advantage for billers. The biller shall continue sending the bill to a PID and reaches his invoice recipient in the accustomed way in the new, improved system.

Thomas Hildebrandt
SIX Paynet

Payment factory provides perspective

A lack of transparency and coordination, unnecessary costs and too little efficiency are among the problems affecting numerous multinational companies with decentralized payment traffic structures. A payment factory based on the ISO 20022 standard enables completely automated data transfer without media discontinuities in the process chain and thereby facilitates efficient cash and liquidity management.

ISO 20022 is the new international standard for electronic data exchanges in payment traffic, which is assuming an increasingly key role worldwide, particularly in Europe. The Swiss financial center is also introducing this beneficial standard, and also taking this opportunity to harmonize payments and to align with the Swiss recommendations for the ISO 20022 message standard.

In the course of the migration to the new standard, many companies will review the organization of their current payment traffic structures. The necessary analysis will not only serve to prepare for the migration, but also reveal important findings about the strengths

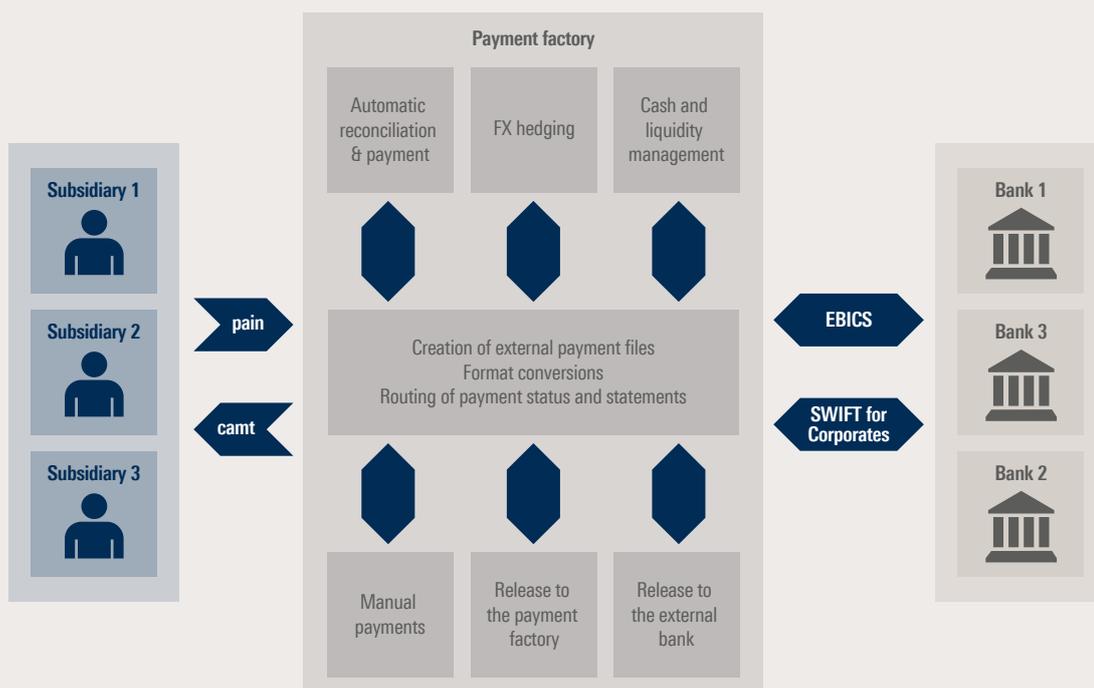
and potential deficits within companies. That is why the alignment with the ISO 20022 standard offers opportunities for every company.

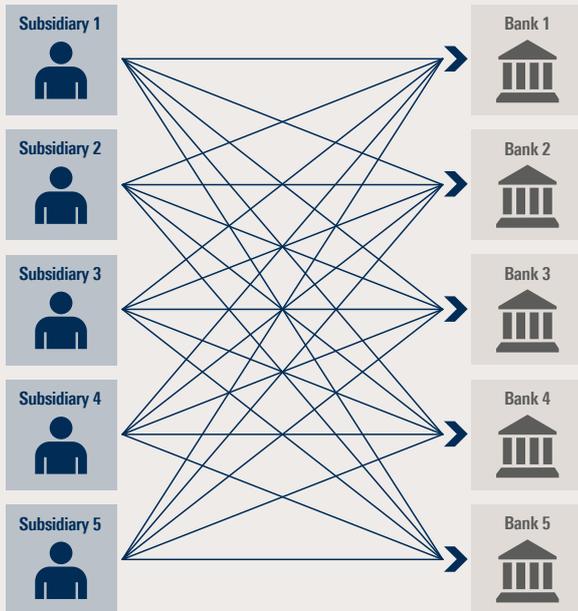
Companies that have migrated to ISO 20022 can also take the next steps towards a centralization, standardization and automation of their payment traffic. The use of the ISO 20022 message standard can assist these projects through which a standard payment transaction processing can be realized for multiple countries. The ideal project to optimize payment flows within a company is the establishment of a central payment factory.

What is a payment factory?

All payment streams within a group holding are centralized at the group holding level through the implementation of a payment factory. Once implemented, subsidiaries and branch offices send their payment instructions not to their banks directly, but to the group payment factory, where they can be further processed in a cost-optimizing manner.

Payment factory: Single point of contact for all payment transaction processes for all subsidiaries.





Payment traffic without a payment factory

Create transparency and reduce costs

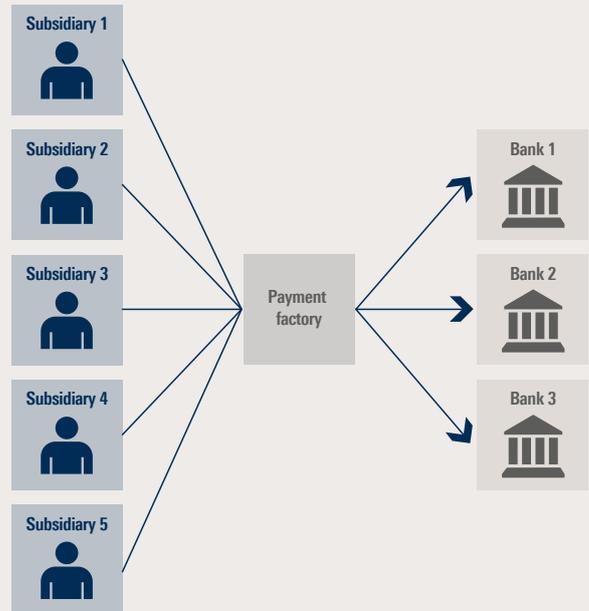
A payment factory, as a central control point, creates transparency, reduces costs and boosts efficiency. This can primarily benefit multinational companies with payment traffic that is organized in a decentralized manner. The additional control options offered by a payment factory provide the treasurer with an overview of the multitude of group-wide transactions and thereby facilitate efficient cash and liquidity management.

Centralization

The implementation of a payment factory provides a switchboard to which all the company's subsidiaries and branch offices are connected and which undertakes the central processing of payments. With the use of ISO 20022 standards, harmonized and automated payment transaction processing become possible. An additional important advantage of centralization is the potential reduction of accounts and bank references, and correspondingly also the cost basis.

Standardization

Many multinational companies have various historically-based systems in their accounting departments. Standardization can be achieved here in the course of the introduction of a payment factory. Through the standardization of the payment transaction processing and the simplification of the IT landscape, message standards, communication channels and business processes are reduced, which can lead to tangible cost reductions.



Payment traffic with a payment factory

Automation

A payment factory based on the ISO 20022 standard enables completely automated data transfers without media discontinuity within a company's process chain. Fully automated end-to-end processes can thereby be implemented, which significantly increases productivity.

Advantages of the payment factory at a glance

Subsidiary

- Reduction of payment applications
- Reduction of payment formats
- The payment factory is the sole contact for all payment types and bank communication matters
- No tests with various external banks are necessary
- Cost reduction through the option of worldwide local payments
- Use of tested processes

Group

- One tool strategy
- Reduction of message standards
- Flexible management of the payment volume on a group basis
- Cost transparency
- Central cash pooling simplifies liquidity planning
- Cost reduction through use of effects of scale
- Processing of foreign exchange hedging transactions at a central level

Optimization of payment traffic

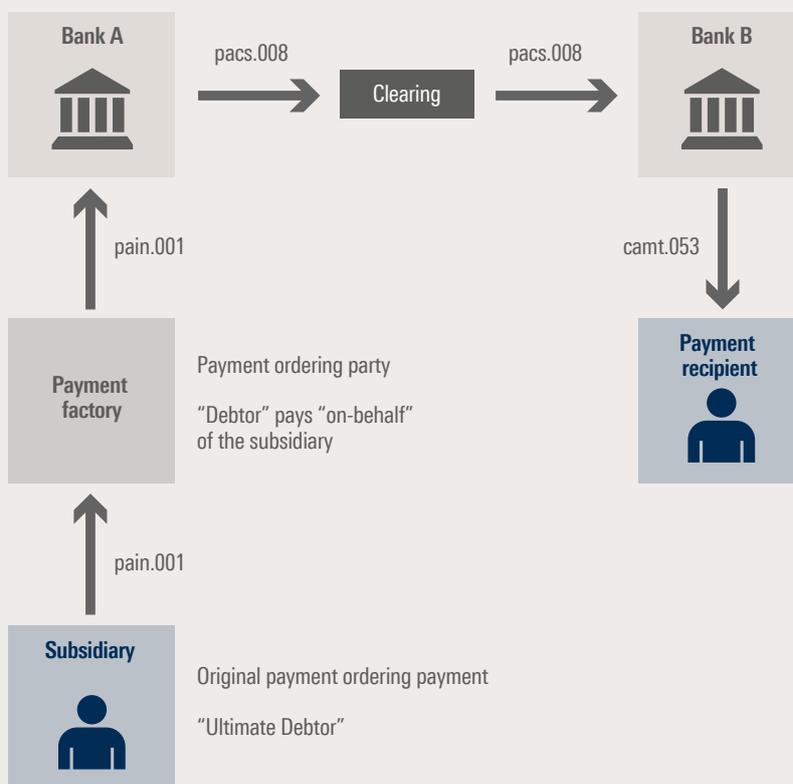
A payment factory is ultimately able to net group internal receivables and payables, and thus to further optimize payment traffic. It also offers the option of transforming foreign payments to domestic payments. Foreign payments for a subsidiary are processed through an account in the creditor's country, thereby making them domestic payments.

ISO 20022 and the "ultimate fields"

ISO 20022 offers so-called "ultimate fields" for the ordering party and creditor, which now make real "on-behalf" payments possible for the first time, which is a fundamental requirement for a well-functioning payment factory. ISO 20022 supports "ultimate fields" in all relevant messages, including credit transfer initiation (pain.001), interbank message (pacs.008) and account statement (camt.053), which guarantees the end-to-end transport of the information.

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Real "on-behalf" payments are possible with ISO 20022.



Blockchains as a substitute for traditional payment systems?

Litecoin, Neucoin, Dodgecoin – there are now hundreds of blockchains, each with its own cryptocurrency. Behind each of them lie various strategies, ranging from the exchanging of financial amounts between individuals to the attempt to substitute national currencies. Are blockchains suitable for use in payment systems?

Blockchains are characterized by openness: a great number of parties can participate directly in them, while security is primarily defined by mathematical probabilities during the decentralized validation of transactions. However, security also depends on the number of nodes (miners, participants), which can validate transactions. Particularly with sensitive contents, such as the processing of payment transactions, the open access and the associated insight may be undesirable for many in a decentralized register. Yet, if access would be limited by the controlled approval of system participants, such as for payment systems with a central architecture, then openness as the defining characteristic of a blockchain would be lost. Consequently, the participants would be known and precise access criteria would be met, including integrity, creditworthiness, banking status, etc. This would effectively establish a type of closed user group (CUG). This is possible in principle for blockchains, however, incurs time and expense. In technical jargon this solution is called a private blockchain. Another further major consequence is that there would be fewer participants that could verify the payments. This in turn means that it would be easier for an individual to obtain 51% of the computing capacity and thus control the entire blockchain. As a matter of fact, 33% of the computing performance bundled in a single node already represents a significant manipulation risk. To reduce this, the block size could be limited per time unit, which a single participant can verify. This may, however, impact the throughput and performance of the system.

Central systems versus decentralized systems

Trust is the most important capital for central infrastructure providers. Besides the reliability and stability of the systems, the basis for trust is access control. At the same time, it must be ensured that no financial market participant is excluded a priori. That precisely is the approach of blockchain schemes, to enable users to exchange transactions without intermediaries, i.e. the banks – an inherent paradox. Nevertheless this does not justify tossing away the blockchain approach. There may potentially be other arguments in favor of it. One example might be savings in daily operation, such as in release management. However, experience shows that it is easier to undertake releases in a centralized rather in a decentralized system.



Caricature from 300 years ago of John Law, the founder of the first bank to place banknotes in circulation instead of gold and silver. Making fun of paper money today would be inconceivable. Even if today's blockchains seem unsuitable for replacing payment systems, no one knows what the future will bring. If they manage to replace the connection between blockchains and cryptocurrencies, then unimaginable opportunities may open.

Cost savings?

Actually, the only reason known to date for a significant breakdown of Bitcoin was a release management problem: the use of different versions in the market. Large projects like LEON, in contrast to the approach of centralizing decentralized components (see the article on page 9), are aimed at designing release management and maintenance of the entire system to be less expensive. This means that important information is stored, managed centrally and is used beneficially. This is possible with a significantly lower number of direct participants in comparison to Bitcoin. In concrete terms, before a new Bitcoin node can be placed in operation, large quantities of redundant data from existing nodes must be verified, the overwhelming majority of which has no relevance for it.

Standardization

Payments that are processed through central systems must comply with precise standards, otherwise they will be rejected. The lack of central validation points leads to a “fraying” of standards. An example of this is the since antiquated, yet still dominant in the Swiss market, DTA message standard. Since the discontinuation of central DTA clearing, an increasing number of “dialects” of this standard have spread through the market, such as in euro payment traffic: although unified schemes and ISO 20022-based message standards are now mandatory in the SEPA zone, hundreds of “dialects” exist in the market. This is due in no small part to the fact that clearing in euro does not occur centrally, but through a wide variety of different systems and banks. Deviations from standards or dialects significantly hinder automated processing. It therefore makes sense for decentralized approaches to pay attention to standardization. With the aim of standardizing their books, 20 globally-active banks have grouped together – among them also a Swiss bank. This is a complex task, particularly when it comes to adherence to these standards.

Scalability

Most central systems are designed to be scalable today so that higher transaction volumes can be efficiently processed. Scalability is problematic for blockchain approaches. This is less important for the applications currently in existence, since only comparatively low transaction volumes are moved. Even with Bitcoin the transaction figures are extremely modest in comparison to currently existing central payment systems; just seven transactions per second can be processed. This is attributable to the deliberate limitation of the block size to one megabyte. By contrast, Visa alone processes more than 1,700 transactions per second in the cards business. This means that a blockchain is currently not at all suitable for a bulk payment system. In comparison: even SIC – although it is primarily structured as a central bank system and not as a bulk payment system – is designed to be capable of processing at least 280 payments per second.

There may well be a way out of the throughput dilemma associated with the blockchain: this means increasing the blocks that are to be validated individually. However, that would mean that the individual miners would have to make greater computer performance available, which would in turn increase the cluster risk in the case of a cyber-attack. A further limitation for the use of an open blockchain for a bulk payment system is the relatively high costs, which would primarily be incurred through the complicated mining process. In the case of Bitcoin, this would be BTC 0.0001, which corresponds to USD 0.025 or 2.5 cents. Any additional transaction costs are not yet included in this estimate.

Central bank systems and blockchains

What is the situation with high-value payment systems in which the maximal throughput per time unit is less important? The real-time processing for the elimination of the fulfillment risk is an important aspect here. With a blockchain-based technology, the validation of a payment takes up to an hour. Since the precise time cannot be determined in advance, the use of such a technology for RTGS systems would tend to be ruled out. The same applies for real-time payment systems in the retail sector, as payments must be processed within seconds.

There are also additional inner contradictions between a central bank system and the decentralized approach of blockchains as such: for example, only the national bank as system manager currently has access to the settlement account of all participants. With the decentralized register, all participants would be able to view the transaction chains. Would that be expedient? And – what about today’s considerable technical security measures that would have to be undertaken in an economically-relevant system with several hundred billion in daily turnover, if such a system was not central, but spread out over several hundred nodes?

Ultimately, the *raison d’être* of blockchains is to replace the political rationale of monetary policy with randomized algorithms. This would make active monetary policies – which are indispensable for the implementation of the central bank system – simply impossible. How would a central bank or a financial market supervisor react to the suggestion that a high-value payment system be built in a decentralized manner based on the randomization principle of the blockchain?

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SIX Interbank Clearing

Impressum

Publisher

SIX Interbank Clearing AG
Hardturmstrasse 201
CH-8021 Zürich

Orders/Feedback

CLEARIT@six-group.com

Edition

Edition 66 – March 2016
Published regularly, also online at www.CLEARIT.ch
Circulation German (1,300 copies), French (400 copies) and English (available in electronic format only on www.CLEARIT.ch).

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Translation

French, English: Word + Image

Layout

Felber, Kristofori Group, Advertising agency

Printer

sprüngli druck ag

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