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Hello and welcome to another episode of BFRR, our Bitcoin Fiat and Rock'n'Roll podcast that explores the intersection of traditional finance, digital assets and digital currencies and helps you understand how digital money and assets will evolve in the future. I'm your co-host Manuel and today, finally again, as always, a very, very interesting episode with Jochen Metzger. And Jochen Metzger is really a fascinating person to talk to because oh

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Jochen, have built an impressive career within central banking, predominantly at Bundesbank. total, according to your linked in 33 years at Bundesbank with a little step in between, I think, at the PIS. So first of all, welcome to the podcast. Thank you, Manuel. And then it would be great if you guide us through your career steps in a quick rundown. If before we then dive deeper into the specific areas that you worked on.

01:11
within in particular your 15 years as director general payments and settlement systems at Bundesbank. Maybe as a brief overview, what have been your career steps in your impressive career? I started out in the Bundesbank in 1988, got my degree in economics, married and went to the Bundesbank as a trainee for civil service. And my first real job was in capital markets.

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as a junior overseer, policy advisor and financial analyst. And I was also charged with promoting Finanzplatz Frankfurt. This was the discussion of the early 90s. Repo market was in London and some people in Frankfurt were scratching their heads. But also in Frankfurt interesting things happened. Think of the foundation of Deutsche Termin Börse and the

02:09
professionalization of the Bund market with bubbles, floaters, stripping, repos, futures, derivatives, anything. And the Bundesbank was heavily involved and I was in the center of it. This was all before the advent of the Finanzagentur. And prior to the introduction of the Euro, I spent also some time at the Bundesministerium für Finanzen to support them in the

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stock exchange section and I also spent six months at the Bundesbank Rep. office in New York with daily extorsions to the Wall Street and to the New York Stock Exchange. And this really, let's say, whetted my appetite not only for, let's say, working abroad but also for capital markets in general, in detail. US is the big example. And so when I left capital markets in the Bundesbank,

03:09
This was to join the German embassy in Buenos Aires as representative of the Bundesbank for Latin America. And all went well until the Asian flu hit Brazil in 1998. And then, let's say, Argentina went into trouble in the late 2000s. And, well, you can say Brazil recovered, recovered as early as 1999.

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and kept a serious macroeconomic policy ever since. And by contrast, Argentina saw another lost decade. But I think the things look better since Xavier Millet took office and was using the chainsaw to fight inflation and public sector mismanagement. And uh while the time in Latin America was great,

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I accepted with gusto when in early 2000 my then governor, Hans Tietmaier, asked me to join the Secretariat of the Financial Stability Board at the BIS in Basel as policy advisor on emerging markets. And well, those were the days when financial vulnerabilities were still

confined to emerging economies. Those days are gone. Now financial vulnerability is right here.

04:38
next door. And back in Germany in 2003, I rejoined the capital markets area of the Bundesbank. I was deputy head of section for market analysis and portfolio management. So I was looking after the pension fund of the BaFin and some other, let's say nice portfolios the Bundesbank was managing on behalf of the federal government or federal agencies. And of course,

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I had a career in my mind, I wanted to advance and the Bundesbank was looking for a head of back office. And I thought, well, somebody who can do front office, he can also do back office, why not? And so I applied, I got the job and the back office in the Bundesbank belongs to the Directorate General of Payments. So I switched from capital markets into payments.

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And well, I entered the wonder world of payments in 2005 and I never left it since. And it took a while, let's say to move through, let's say the antics, but in 2006 I was, let's say preparing target two. This was all in full swing and let's say we started

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had of course started out in the Eurozone with the target, target one by Hindsight, the Trans-European real-time cross express transfer system, which was more or less an interlinking of existing national RTGS systems with minimal harmonization and let's say non-existent efficiency. However, we already had the famous inter

06:39
NCB accounting, the famous Target 2 balances. And at the time they were pretty low. Bundesbank balance was close to zero because the money market, the private capital markets did the job very, very well. And of course it was clear that let's say we needed a better solution. And on 19 November 2007, Target 2 started its operation with the famous first wave, including Germany and its smaller neighbors.

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It was a pleasure for me to hand out the tombstones, some agri-blocks for the first 10 payments made in Target 2. In the meantime, I had been promoted to Director General Payments and Settlement Systems and my next job as soon as Target 2 was finished to work on Target 2 securities on T2S started.

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more or less just the other day. And for me, this was, let's say, a good opportunity because I was one of the few key players in payments that did not only have some payments knowledge but deep experience in capital market, including the back office, including the plumbing. And having been to Latin America, I also spoke Spanish. And this was also very useful.

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because it helped me to convince my Spanish colleagues at Banco de España to join the free CB to make it 4CB. This was not so much, let's say, for the sake of a bigger development team. No, this was about politics, about strategy and about stability. I always thought the four big central banks of the Euro system, the 4CB, should be something like... uh

08:36
the fat New York of the Euro system and you needed all four for this. so it went. T2S was a highly unlikely and almost improbable project, but it nevertheless got off the ground. It was

very difficult to convince the CSDs that it would be in their best interest to outsource the settlement of their securities account to the T2S settlement engine.

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but it was the best opportunity to provide DVP settlement in one platform. Central banks would bring the cash to the platform, the cash accounts, the target two accounts. CSDs would bring the securities accounts and uh well, here you go with T2S. Of course, T2S was very difficult because managing cash and securities in parallel.

09:36
keeping them in sync is adding complexity, not in a linear fashion, but in an exponential fashion. And we learned this the hard way. The project took longer than expected. And also migration was a cumbersome experiment because all participants, the financial market infrastructures, the players, the banks, the...

10:04
stock exchanges, CCP, you name it, everybody had to dig deep into its own legacy system. Market procedures needed to be changed. We had harmonization efforts. The meetings of the T2S Harmonization Task Force were legendary. They took long, they never ended and they were, let's say, rich in detail. It was almost a torture.

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But in the end we succeeded in coming up with a harmonized procedure that was working well. uh if you look at by hindsight you could say, well, it could work better on cross-border settlements. And this is because not all the links that are necessary to cover the full ground have been established.

11:01
custodians and ICSDs still play a very big role in cross-border settlements. Of course, this is also related to the fact that we have many investors in the European capital markets that do not have a natural access to central bank money, which is the preferred settlement asset in T2S.

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Eventually, I think we are quite happy and we learned a lot while doing T2S. We learned a lot about how to drive harmonization, how to drive an harmonization agenda. And this became important again in 2020 with the T2, T2S consolidation project, where the ECB asked the 4CB to bring together T2 and T2S infrastructure. The idea was to have cost savings.

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and to have a uniform communication layer and to migrate the euro to ISO 20022 and to introduce the central liquidity management. And we talk here about a project that was strictly necessary and nevertheless extremely complex. And for me, the most important change clearly was the move to full ISO 20022 messaging and compliance.

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Again, it required all participants and stakeholders in the euro payment market and the euro correspondent banking, never forget, to dig again deep into their systems and change old procedures such as standing orders or bulk payments. Under ISO 20022 everything had to change in order to stay the same. And harmonization was also important for the ECMS.

12:49
the Euro Systems collateral management system that eventually went live and is now providing a uniform interface for posting collateral with the Euro System. And of course, this is also connected to T2S. But there was also quite a bit of development in the retail payment space. And now I think we should talk about the SEPA, the Single Euro Payment Area.

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In a way, SEPA was different from T2S. It was not the central banks driving this, but it was the private sector who took the lead with the European Payment Council. And in countless working groups, the banks were drafting the SEPA schemes for the instruments and also the plan to secure adherence. And of course, this did not go without resistance. First and foremost in Germany, Germany was

13:49
very reluctant to pick up SEPA and in the end the EU Commission had to weigh in. Maybe you remember E-Bahn die Schreckliche or E-Bahn the Terrible. This was in 2014. And of course with SEPA, the National Automated Clearing Houses that were processing retail or mass payments had no longer any excuses for not setting up links.

14:17
and cooperate and to make the single euro payment area a reality. And of course it was the EBA clearing, the Euro Banking Association clearing that became the dominant force in euro retail payments with their system called STEP2. And uh settlement occurred still via Target2. This was, I think, let's say a very neat combination. You would, let's say,

14:45
use SEPA for the communication, for the information layer and you would do settlements in central bank money in Target 2. This worked very well, works still very well today and with target instant payment settlement with TIPS we kind of copy paste that approach. It took off in 2018 and again it was this cooperation with EBA clearing that let's say

15:15
changed uh the game because EBA clearing had started with RTS1 as an instant payment system and agreed to use TIPS as the settlement layer and so I guess now after eight years we can say SEPA Instant is the new normal in retail payments. It works instantly, it settles in central bank money. I just love it.

15:40
Before we jump back into today's episode, let me make you aware of the Digital Euro Conference 2026 happening on March 26. The DEC is one of Europe's key events when it comes to digital money, bringing together central bankers, regulators, banks, fintechs, crypto innovators and industry leaders to explore where money is headed. This year's focus goes beyond the digital euro itself. We will talk about where we stand from piloting to real world rollout.

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It also looks at how stable coins on commercial bank money tokens are shaping the future of payments. You will hear from speakers from institutions like the Bundesbank, Bank of Italy, Bank de France, the International Monetary Fund, the European Commission, and experts from tech, finance, e-commerce, the blockchain space, and many more. You can join the event, the DEC26 in person or online. And if you're interested, feel free to use the discount code BFRR20.

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to get 20 % off your ticket and check the show notes for details. Hope to see you soon in Frankfurt.

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especially now after the new regulation, the instant payment regulation that enforces ultimately on the sending and the beneficiary side, the access. em Yeah, it's great. mean, to summarize, and this was a long run through already through your impressive career in particular as a director of general payments and settlement systems at Bundesbank, we're

going to dive deeper now also into each of the different areas. But before doing that, as a summary for me, this is what excites me to talk to you is

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Really everything that happens within the euro area and the euro system after the euro was introduced when it comes to harmonization of payment systems. You basically designed or helped to design and worked very hard on bringing that to reality. So all those systems that you mentioned at the moment for those that are working in payments are standard. They already existed. Eventually um some colleagues have also worked on them.

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but this is all really part of your uh major career. extremely exciting. Also learning from you on, and this is then the second part of this podcast that we also clearly want to touch on, your new initiatives that are all around a blockchain, right? So distributed ledger technology, which makes you such an interesting person to talk to because you know the legacy world, the existing world, but now also the new world. So very happy to have you. Now let's maybe come back.

18:14
to each of the different topics before we then also dive deeper into the blockchain projects. Target2, which is really the foundation, as you say, also for CEPA, ultimately also for Target2 securities, and now after the consultation also for T2 and T2S. How did the settlement landscape look before Target2? And you already touched upon it a bit. So what I understood is that there were domestic RTGS systems. So Germany had their own high value.

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real-time gross settlement system, Spain, Italy, France, and they were connected via target one, which ultimately then provided the interlinkage between those different systems. Can you maybe go a bit into that again and share our listeners a bit how that looked like? Because I can imagine that interlinkage is always difficult. You need to have technical interfaces, you need to have standardized messaging in order to make this really seamless and straight through.

19:13
processed. How did that look like? If you want to have, let's say, a graphic representation of this, think of a spaghetti model. This was uh an expression my Italian colleagues often used. I.e. we had relatively thin pipes connecting the uh national RTGS systems. had, let's say, harmonized the

19:41
the cut-off times, had harmonized the formats, the procedures, but only to a minimal degree. And sometimes when money market activity was happy, when we had triple reaching days in the derivative exchanges, the pipes were overheating. And it was clear that we need a better solution than this.

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because the performance, the scaling in critical moments of this interlinking model was not a given. And with Target2 we did not only introduce, let's say, one technical platform, although legally speaking we kept separate systems. No, we also introduced, let's say, this harmonized way of processing and we made the settlement day longer.

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The Euro system is not charging for intraday, let's say, lending. It's not charging interest on intraday lending. And so you can, let's say, the liquidity, if you want, at seven o'clock in the morning. Somebody has to start the process and you retrieve it, let's say, at six. And this means you can stretch out payments. You can say, OK, we have, for instance, the bridge, we have the nighttime security settlement.

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between let's say EuroClear and ClearStream. This is let's say some of it still is in commercial bank money, but this is now also embedded into T2S. But nevertheless, in the morning you have a first rush triggered let's say from nighttime settlement. You have let's say the critical and highly urgent payments. You have the margin payments for the CCP and you do the money market business and you start cleaning up

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around four o'clock in the afternoon. But during this period, you can move liquidity freely. You can also bridge your liquidity into euro one and retrieve it later during the day. So this is really, I think, also something that T-target to broad, not only harmonization, but a longer settlement day by not charging interest rate intraday. So you do not need to do everything in one moment.

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You can take bit of time, which is good and which also helps to overcome frictions. Frictions is a topic that is not only haunting payments, this is also haunting capital markets, even to a higher degree than in payments. In payments, usually you have the frictions between currencies. But in securities markets, it's worse. And before Target 2,

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If there were domestic RTGS, so RTGS also for the listeners again, this is the real-time gross settlement system that ultimately is used to settle between different banks and central bank money, where banks hold basically balances in those accounts at the central bank. If now, let's say Deutsche Bank and Commerzbank do a transaction via the domestic uh RTGS system before Target2 was introduced, that's no problem because they both hold an account with Bundesbank. But then if you want to settle, for example, to Santander that holds an account with Bank of Spain,

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Was there another settlement asset where then the domestic RTGS systems held another account at the ECB or how was that? Yeah, this is the famous inter-NCB accounting. So during the day in the target system, and this is not different in target two than it was in target one. During the day, each central bank records transactions towards other central banks. So there are 21

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bilateral accounts. You record the transactions, the debits and the credits. So let's say if Deutsche Bank would pay into Santander, Deutsche Bank would first be debited, Bundesbank would be credited, Bundesbank would debit Banco de España, Santander finally would be credited. And this inter-NCP accounting, the debit to Banco de España, this let's say

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was recorded and at the end of the day this was consolidated and novated. Consolidated into one saldo and novated into an exposure against the ECB. The lawyers were constructive at the time. This agreement on target settlement, this inter-NCB accounting, it's less than 30 pages. It's a relatively neat and easy readable document.

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And it does it all because from an accounting perspective, a euro created on the liability side of the Bundesbank can never leave the Bundesbank accounting system. Impossible. And the same holds true for all other central banks. And in order to guarantee that, let's say, one euro issued by the Bundesbank is equal to one euro issued by Banco de España,

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you need this inter-NCP accounting and this must be unlimited. There cannot be any limit here and it must be open. And as I told you in the beginning, when the euro was in its heyday, when let's say the future was bright and everything was working well, money markets, European money markets did the job. German banks acting as money center banks.

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borrowing and then, let's say, placing the funds throughout the Euro system. This was a kind of the setup of the, let's say, early 2000s. And of course, this came into shock in 2008 and even more so in 2012. These are the famous target two balances. Yes. Where ultimately you could even combine it or compare it, I would say, to Nostro accounts that banks hold with each other. Right. Yes. Because ultimately,

25:59
what Banco de España would have would be a liability of Bundesbank or a claim against Bundesbank? No, no. One notable exception here. One big difference. It would always be a claim against the ECB. Yeah, OK, because the ECB guarantees it ultimately. You know, the ECB kind of acts as go in between by novation. At the end of the day, the balance is always converted into either a credit or a debit to the ECB.

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So the Bundesbank, probably the maximum balance recorded was some 1800 billion euros, let's say credit to the ECB and Banco de España, Banca d'Italia, Bank of Greece and some others more or less having the debit position against again with the ECB. So ultimately the target to introduction to basically wrap the bucket up was

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not changing the way how the money is being moved, but rather just harmonize the infrastructure, harmonize the technology, harmonize the cutoff times, as you said. But until today, again, you have basically the accounts that each national central bank has with the ECB, within those balances are recorded. Let's say this was a of a precondition of the currency union. The euro was set up in this particular fashion.

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And if you would want to change that, say, if you want to, let's say, develop this to the next step, you would say to the next stage, you would say, okay, all banks will hold their accounts with the ECB directly. Then you do not need inter-NCB accounting any longer. But so far, the Euro system has no appetite for this, not even the ECB is asking for it.

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In this respect, we are a little bit like Fed Board of Governors and the Federal Reserve Banks. The US model is shining through here. Yeah, and then ultimately this process was finalized in 2007, 2008, so before the crisis. And then, as you said already, the work on target to security started, which then took like a decade almost, right, which was really one of the biggest structural changes in

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European capital markets that introduced this pan-European platform for security settlements that connects to target tools for the center, to target tool for settlement and central bank money, but then also to 20 or even more central securities depositories or CSDs for the security settlement where ultimately the securities are recorded and transferred, right? So can you explain us in layman terms how T2S really works by combining securities and central bank money settlement? Because these are still

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many, many different CSD systems plus then Target 2. Maybe the best description is to think of it as an outsourcing of critical services. The CSDs have outsourced the operation of

their settlement engines to the Euro system. This is how I would describe it. And of course, the Target 2 has made available

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the cash accounts for the process because in order to do a DVP settlement at night time you have to simultaneously debit cash accounts and to credit securities accounts. The buyer will want to receive the securities and he has to pay and the seller will want to receive the cash and he will deliver the securities. In order to do

29:44
do this simultaneously to let's say make this frictionless to make it efficient, it's best done on one platform in one settlement engine. Legally speaking, we are of course entering a nightmare here. I think we could easily celebrate 25 years of European securities law harmonization with no consequences at all.

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So how do you behave in an unharmonized legal situation? You do what is technically possible and legally speaking, each system, each legal CSD, each NCB remains in control of its account and its accounting circle. And now how do you deal with finality? Well, in the end, all CSDs signed an agreement

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with the euro system, with the ECB, that each would respect the finality rules of the other. Of course, they were harmonized up to a big degree. However, there are still a lot of national specificities in European settlement finality. The settlement finality directive is, let's say, a very special animal. And well, you have to live with it.

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This means you do what is feasible at the technical level and at the legal level, you have to live with the complexity and with the difficult situation. But it works and this is the important thing. This is why I'm quite proud of Target to Securities. It works. And why did it really take like more than a decade to finalize it from the first ideas to the approvals, then to the realization in 2017? I mean, you said it.

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There's lots of plumbing needed between the different CSTs. They would need to outsource the settlement engines as you describe it to um the ECB. I can imagine that this was not, you know, liked by all of them. But what was the biggest issue that you faced in those more than 10 years work on uh T2S? The biggest issue was the lack of harmonization. You have to imagine that each European market and market defined by

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stock exchange or trading venue by CSD and by CCP if CCP settlement was being used. You had 19 different models and we tried to harmonization charts where we would let's say do overlap things. So there would be a tiny tiny area where the processes of all 19 initial participants would overlap. I had not imagined.

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that it was so different. This was also very much different from the Target 2 situation. In Target 2 also payment market practice was different in the 19 markets but it was not that different. However, securities, this was a nightmare. And then of course, CSDs would say yes, of course, we understand.

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We want to harmonize and by the way, once we have harmonized the rules, we are happy to join uh T2S. First you harmonize and then we join. And I think this was the master stroke of the Euro system, of the ECB. Euro system said, no, we start with the system because we need you for harmonization. And if we do not force you,

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to harmonize. You will never do it. You will always find an excuse. And by the way, joining is voluntary. However, we can guarantee you even if you do not join, the Euro system will go ahead with the project nevertheless. And we will offer this pan-European settlement platform to the market, like it or not. And then all of a...

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sudden we had a kind of a triangular corner situation. The CSDs were in one corner and central banks in the other corner and big market players in the third one. And the NCBs and market players ganged up on the CSDs. Ultimately then moving them to join. Yes. And this is for me a lessons learned of harmonization. Harmonization

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has no business case. If you want to harmonize, somebody has to overcome this, let's say blockage, that you cannot seriously calculate a business case for harmonization at the level of an individual company, at the level of an individual CSD or bank, whatever. The common good needs an advocate. And in this case, the Euro system was saying, no, we are doing this.

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Even if it costs a billion, we don't care. We do it. And you will, let's say, you will be taken along. You will join. And in the end, all of them joined voluntarily. So the first one to sign was actually ClearStream. Second one was to sign was Heroclure. And then, let's say, things developed fast. And of course, this harmonization was took already.

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a lot of time, but the next step was implementation. Okay, now we have harmonized rules. Now each market will have to implement them. Oh yeah, at the level of the CSD, at the level of the CCP, at the level of the stock exchange, at the level of the back office of an individual bank. There were unexpected obstacles. There were complications. There were delays. You name it, you have it. And think of Finland. Finland has a direct holding model.

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i.e. investors would have their custody account with the CSD. Most European countries would have an indirect holding model. You have your custody account with your custody bank and the custody bank would have, let's say, the account with the CSD. So how to square this? It was really, it was, let's say, fascinating and it was also very, very complex and it would not have worked if the Euro system would not have said no.

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Even if it's taking longer, even if it costs more, we will do it. We will deliver it. There is no doubt about it. And then ultimately delivering something that um many of our listeners might only also hear often with regards to blockchain already, which is delivery versus payment, And to make transactions where either it happens or it doesn't happen when it comes to a swap of money against securities. This was then the outcome ultimately, right? Which

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wasn't so easy beforehand because the cash leak in central bank money was not directly linked to the CSD booking, so to say. Is that a fair summary? um has this been allowed for the first time? I have to insist on one detail here. In the EuroClear model, i.e. in France, Belgium, the Netherlands and also Portugal, the link was already there before T2S because uh

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those central banks had allowed the CSD, in this case the national EuroClear entity, to book on its accounts. So the central banks had outsourced their accounts to the EuroClear

in those countries. However, there was no chance for a consensus on this in the Euro system. And so the discussion was, okay, do we keep platforms separate or...

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Do we talk to the CSDs whether they would be willing to outsource their settlement engines to T2S? And in the end, the CSDs agreed to this because they said, okay, this is maybe the path of less resistance and also let's say if our clients want us to do it, it may be better to do it and we will develop, let's say new value chains, we will develop new services. This unbundling of

38:22
CSD and settlement service. Of course, this produces winners and losers. And if you look into the balance sheets and the profit and loss accounts of some of the CSDs, they're doing well. You can even say T2S maybe boosted their business up to a degree. To wrap this section up, the target consolidation then took place, right? I think also immediately

38:48
Then after T2S was launched. just finished it more or less. It was running well and we took on the next. And this went live in 2023 with a complete rebuild of the RTGS system from Target 2 to T2. And many in the industry also still call it Target 2, even though the name has changed to T2. And then the introduction of the Central Liquidity Management Platform, CLM. From your perspective, what were the most important changes in this consolidation? Was it?

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the introduction of CLM, maybe you can also describe what that is, or the ISO messaging, which is still a big, big, topic in the industry, right? To go away from empty messages, unstructured formats into an XML. It was clearly, it was the ISO. And as you mentioned, Manuel, the industry is still struggling with it. This, let's say, also gives you an idea how complicated that was.

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to introduce this at the platform level. First, had naively thought, okay, let's change the MT formats into XML formats. Who cares? No. In order to make use, to make full use of XML, you have to change your processing. And so we more or less had to rebuild Target 2. And it was unavoidable. The whole world is moving to ISO.

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and then the Euro system cannot stay apart. If we want the Euro to play a role in international finance, we need to be ISO compliant, period. There's no way. And also correspondent banking kind of did not really appreciate the effort. They said, oh, the empty world is working so nicely and the US is moving later. You are the first movers. Why do you want to move first?

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I said, yeah, we are complicated, we know it will take time for us to get ready. Okay, so interesting discussions, but the central liquidity management was also a game changer, although less complicated, because it was a discussion among treasuries. Because we talk here about the way on how to connect refunding operations with the central bank.

41:13
refinancing operations with the NCB, how to connect this to the use of liquidity in various systems. And there, there was a clear uh business case for building one central liquidity account, where all refinancing operations including intraday, including any repo transaction, whatever it was, whatever creates liquidity in the contact with an NCB would go in there.

41:43

and from this, yeah, from the CML, from the central liquidity management. And then, of course, you start, let's say, supplying the liquidity to systems. You can do this with standing orders, i.e. in the morning, you fill the dedicated cash accounts at Target2 securities, at Instant Payments, wherever you need this. Or you can also, if you have incoming cash, you can, of course,

42:11
reduce your let's say your refunding operations. You can let's say manage this and also third parties. Many German banks they do not manage their payments themselves any longer. They have outsourced this to big providers and so of course they are still using their own liquidity and their own target account. However the management of the liquidity and the account they have outsourced to one of the big providers and of course the

42:40
CLM structure having the central hub and having dedicated sub accounts helps to do this helps to orchestrate the business guys for this. Very interesting and so and then 2023 basically the m consultation was done. I mean you left the position in 2021 I think right so you prepared it. I prepared it and then the Bundesbank proposed to me

43:07
to become president of our regional office in North Rhine-Westphalia. So you moved to Düsseldorf from... Yes, I moved to Düsseldorf. First, I was a bit skeptical, but in the end, I liked it. Especially, let's say, the interaction with people in North Rhine-Westphalia. They are, how would you say, nice and friendly. Not only the famous Rhinelanders, but also the Westphalian. I got very... I got along with them very well.

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And I also had, let's say, staff. had 900 colleagues supporting me. And so when I left, and I have to explain why I left, it was very emotional, let's say, departing from Düsseldorf. I had not expected this. I mean, you started, I think, also then, I don't recall whether it was before or um afterwards with this role.

44:05
to facilitate basically digitization across multiple areas, right? So the whole digitization topic and then even blockchain topics already emerged, right? Yeah, because let's say when I was a director general for payments and settlements, despite T2S and SEPA and all that, we had found time to do blockchain projects. We did the first series of Blockbuster with Deutsche Börse in 2016.

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and I liked the idea, I was fascinated and for my feeling the bond market was ripe for digitalization and DLT would be a nice fit, smart contracts would be a nice fit. However, to pursue those ideas beyond pilots or prototypes was not possible within the Bundesbank. The appetite for this type of thing was...

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low, at least, let's say in the early days today, it's completely different. Bundesbank is pushing hard for the digital euro in its wholesale variety and rightly so. But believe me, this was different uh in 2016 and it was still different in 21 when I left. And when Robert Koller approached me, that he said, would you...

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Would you not like to do something in the digitalization of the bond market? Would you not like to do something more than being president in North Rhine-Westphalia? I said, well, why not? Because I was hooked on the idea of digitalization and DLT. I thought this is the next thing and I wanted to be part of it. And Robert was offering me the possibility.

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So we had to find a way of doing it. I retired from the Bundesbank, early retirement. This is something you can do as a civil servant. And I joined NowCM as a global head of markets. And as a global head of markets, I was in the middle of the strategy of NowCM to convince the issuers and the dealer banks, especially the debt capital market desks.

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about the virtues of digitalization. And this was easier with the issuers, but the debt capital market desks, were quite a bit reluctant. And of course, the business idea of NowCM, Now Capital Markets, was to start with digitalization from the very beginning.

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The first idea of a bond when you go beyond the Bloomberg chat, then you should be already on the platform. Then you should create the digital data set for the bond that includes anything you need for the bond during its life cycle. All information that some service provider along the chain, post-trade, middle office, whatever it is, they should all be able to

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to read this information to have access to the digital data set. It's kind of a golden source. You can call it digital twin. Instead of doing paperwork or PDFs, you would do a data set machine readable, of course.

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This offer came to the market in two flavors. There was the idea that for mid-cap and smaller corporates, doing issuance digital from zero was not an option, would be too expensive, would take too long, but that smaller corporates could very well use a standardized, a fully standardized digital menu and you combine this

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with a financing compartment of Now Treasury in Luxembourg. i.e. the issuer would not issue himself but he would take out a loan from Now Treasury and Now Treasury would place the bond with the investors. And of course Now Treasury did not have a placement organization. Now Treasury would rely on the dealer banks. Usually it was a dealer bank, let's say close to the issuer.

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Usually, issuers and the bank, they kind of both thought it was a good idea. And so, let's say, we had a string of dealer banks and paying agents that made this happen. And this was, let's say, this was extremely fast. Normally, as a small corporate, if you go to the market first time, six months is nothing. And if you are unlucky, the window of opportunity for your credit, for your market niche has just closed.

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So with us, this was down to six weeks and when we talk about fees, it would be, let's say 20 % of what normally you would need to pay, you would be in business for 50,000 euros, And this was for the smaller ones, but also for big and...

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really frequent issuers like the SSAs, NowCM would have an offer and here NowCM would offer the full documentation platform which was rich in digitalization and sharing tools to issue any type of depth instrument both for public and for private placement. And here you could really like a Lego system, you could use building blocks, you could do everything on your own.

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You could bring in an architect, i.e. your bank, your DMO could be holding the pen. You could bring in the lawyers. The lawyers would, let's say, structure the agreement. Or if we talk about asset-backed securities, of course, let's say the sound and safe transfer of

assets to any given structure is paramount and needs to be reflected in the bond and so on. And I quite like the idea.

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I took over the position of CEO of NowCM France, our regulated marketplace, our MTF for commercial paper in Paris. And of course, the vision was, it's not commercial paper, it's everything. We will connect the Now Treasury and the Now Docks with Paris. We will make sure that all transactions that originate in NowCM could be executed with one click on the

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trading screen of the Paris marketplace. And I always call this all roads lead to Paris. So I was pushing heavily within NowCM to make this a reality. But uh in a startup, even in a relatively mature startup, in a mid-sized startup like NowCM, you are hitting on financial constraints, you are hitting on resource constraints. You cannot, let's say, move

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as freely as you would like to. And it was just so unfortunate. We had just completed the first series of issuances on NowTreasury and also on NowDocs. We were working with one of the big SSAs when our financing became unstable and insolvency hit last year in October.

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As CEO of NowCM France, I had to file the bankruptcy petition myself in the Tribunal du Commerce in Paris on 2nd of October. For a Bundesbank person, this is quite an experience, I can tell you. Did NowCM actually already use blockchain? No, did not use blockchain. The digitization of the whole issuance process, then the...

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ultimately trading process because there was the MTF as well involved. Was it even paperless securities as it is possible now, for example, in Germany under the Electronic Securities Act, or was it even combining paper based issuances that were held at depository banks and so forth? So where did the digitization stop, so to say? This was driven by uh legislation, by the laws on the grounds in France, for instance.

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everything was paperless because France has dematerialized its capital markets very early on. Of course, in Germany, completely different story. Before the advent of the electronic paper sets, you had to print your global note. Yes. Even if there was just one or two buyers. No way. You had to do it. And so our digitalization included

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the complete printing instructions for the global node. At least in Germany then, Yes. So for French securities, no need. And of course for Netherlands, for Belgium, uh let's say in a different fashion, depending on the degree of dematerialization available in the market. But we had to kind of twist our model that it would fit all type of markets and all type of security laws. Because in a way you can say the

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Digitalization is a way of dealing with the unharmonized landscape. You're not doing away the obstacles, but you make it more convenient. You make it more easy to overcome them. And where does um the debt capital market currently stand with regards to digitalization of the issuance process? mean, now CM was likely a player in that game, in that market.

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Do you see others continuing to succeed? Yes, there is one more player in this market, but this player has kind of three handicaps. The first handicap is this player sits in London. This is difficult when it comes to European counterparties. It's not impossible, but it's difficult. Euro market transactions, different story, but those are usually big tickets.

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and for big tickets the current model works relatively well. The current model does not work well for mid-sized and small tickets. The second obstacle, second handicap is the player in London, competition in London is not licensed. So scaling will always be, let's say, constricted by having agreements with licensed entities.

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Third one is lack of flexibility in the platform. You can only have standardized versions of different instruments but you cannot say okay I have a bespoke transaction of 200 million I want to build the documentation with your tools. This does not work with the player that is still in the game. Nevertheless the company is still up and running.

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which now CM is no longer. So maybe my description was a bit too negative here. But in the end, I think not going for DLT was probably a mistake because the power of the data set, the power of the golden source gets leveraged when combining it with DLT when, let's say, creating a smart contract.

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when you use it as a payload for smart contract. Of course, now CEM tried to partner with DLT companies selling this payload concept, but this was probably two worlds were meeting, but not really talking to each other. So if now CEM would have extended the concept and look into DLT on its own, it might have worked better. But this is by hindsight.

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When we were in the middle of it, we had enough on our hands that we kind of did not really push for this. And as you say, mean, you're also dependent on funding and then if uh funding runs out, you cannot do everything that you would love to do. But there's another play and maybe to slowly come to an end to this very interesting episode that we are running. The other project that you then also in parallel already started, I think only

57:24
Six months after you joined now, see in 2024 in June is Axiology, where you also act as a um non-executive board member and likely also help them in their next steps. And they are uh a DLT native company or FinTech here, right? So give us a quick rundown of what Axiology does in these fully integrated capital market systems run on DLTs. They have a TSS.

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So trading and settlement system in the DLT pilot regime. What is it that they try to do? And how does it basically also differ to now CMOS? it in some regards also similar? I will try to take this, let's say, step by step. Axiology is fully licensed both under MECA and also under the SFD. So we can offer primary market services on DLT, the book building.

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We can offer CSD services, both let's say settlement and we can also offer custody services. We have MTF service, we have a trading platform. We can do the full life cycle management of depth securities. And we are using uh the Ripple infrastructure, the XRP ledger for this. So this is very robust, this is very stable, very efficient.

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And we believe in interlinking by design. So Axiology is open for cooperation with brokers, with dealer banks, but also with other DLT, SSS, with other service providers, you name it. We will not be shy and take a look because DLT, Decentralized Finance, is not about silos.

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At the moment, too many solutions, they work like this. Okay, if you are on my platform, you can do everything. But uh if you want to take a position out, fund or defund or let's say cross system, the answer is no. The efficiency goes down to zero. And this is something that must be avoided, especially given the inertia of the capital market. I think

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I was alluding to this in the now CM context that the dealers were reluctant to change something. And when we talk about DLT, the story is not different here. So if you have not enough volume to scale up in the beginning, you have to use interoperability to make most of what you have. And at Axiology, we have some small

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Nordic bonds, some small Baltic bonds that we have issued successfully and sold to investors. We are doing transactions with crowd funders. have brokers that have retail clients and wallet infrastructure. So it's the little bits and pieces that we try to add up. It really opens up for retail clients as well, right?

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Yes, we do not have retail clients directly, but we would work with brokers that have, let's say, nothing but retail clients and they're specializing in certain clients and products. We would provide them with the platform, with the facility. And uh of course, we settle against e-money tokens, European e-money tokens that is.

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We do not settle against US stablecoins. And being, let's say, a bunch of ex-central bankers, it's not only me, the founder of the company is also an ex-central banker from Lithuania. So Axiology is based in Vilnius, Lithuania. Let's say we would love to settle against central bank money. However, this is not available on the chain. The digital euro on the chain, maybe 2030, if not later.

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So what do we do in the meantime? Well, we use e-money tokens and we are also using Pontes. We were part of the ECB trials and we will use Pontes as soon as it becomes available, i.e. settle against target to balances. For those players that ultimately also can use it, right? mean, these are the banks that have RTGS accounts. If the brokers, for example, that serve the retail clients,

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They don't have an RTGS. Their bank could provide it or they continue to use the E-Money token. Exactly. And if I look at use cases for retail directed or for retail driven transactions, the tokens and also tokenized deposits, let's say, are a good solution. But let's say when we speak about wholesale transaction, B2B transactions,

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uh risk is a consideration that cannot be ignored. And then I think e-money tokens and tokenized deposits are not good enough compared to central bank money as a risk-free, completely risk-free asset. But at the moment we are in a kind of an intermediate situation. DLT is winning support.

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But the big driver towards DLT comes from the crypto space. And of course, in the crypto space, stablecoins are the settlement asset of choice. And if you now start imagining portfolios where you have crypto assets and traditional finance assets sitting next to each other, let's say, how do you settle? How do you organize this? What is your, let's say, your strategy and

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What are the service providers and the infrastructure you are choosing? And Axiology wants to be part of that. We will be able to do everything and of course we will do it in a very safe, stable, reliable and sound manner because when we talk billions, risk should be kept at minimum level. And Lithuania is a good ecosystem for this type of ideas because Lithuania benefited from

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some unicorns, in particular from Revolut. So the environment is open, is startup friendly and digital friendly and this is why Axiology is, let's say, developing well. And if I compare it with NowCM, NowCM and Axiology would have been great partners because the data set of NowCM, the digital data set would have driven the

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issuance business of axiology to the next level. It would have really benefited and perhaps there will be another service provider that does it or the market will eventually come to its senses or maybe very naive hope. The European Commission would pick up the case for standardization and digitalization of the capital market in the context of the

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savings and investment union, but I have to admit this is a long shot. Another longer project that someone needs to take up similar to how you have taken up all these projects. Maybe as a last question on there, where do you see now, because you said um DLT was maybe even missing in now CM, where do you see the big benefits of DLT as a new issuance settlement and custody infrastructure? Is it simply to become independent of the CSDs?

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Or is it really also a technological benefit that you see? I also see a technological benefit of DLT and decentralized finance. And this is the ability to connect all stakeholders end to end from the moment of issuance to the moment of redemption in the wallet or in the portfolio of an investor.

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At the moment, the current infrastructure is always cut into pieces. And you have a service provider for each piece. And sometimes the pieces fit together nicely. And sometimes you have to bridge an enormous gap to get over into the next stage. And DLT is a solution for this. And it's a uh cost efficient solution. Because it takes out all the need for validation, reconciliation and all that.

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that you would need to do in a very fractured value chain. So DLT has a promise. But uh how long it takes until the wholesale market is going to embrace that promise? That's very, very hard to tell. Because if you talk to bankers, say, what is your problem? The market is working well, we are doing deals, the euro market is thriving.

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and you tell us we are inefficient. How come? Please explain. And of course when you start then talking size and talking about transactions that are not being done because the situation is as undigital as it is, they start becoming interested but say yeah but maybe this would let's say require enormous investments. I don't know what the others are doing so it's an issue of coordination.

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And probably, let's say you would need some public sector intervention. Recalling my harmonization experience of T2S, somebody has to step up and and by the way, we do it. By the way, we force you to make your DLT interoperable. We force you to connect to traditional finance to enable classic corporate actions if necessary. And I think the ECB with the Apia project could have that power.

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It's not yet clear. APIA is just at its very beginning. But this is my wishlist for APIA. If APIA achieves this by forcing the industry to take the jump, it would be a tremendous achievement. It would really bring European capital markets to the forefront. At the moment, the is driving us.

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DTCC with its tokenization is shaping the industry. This does not help us. We have to reshape the European market ourselves and we need perhaps, we need a leader for this. That would have been my last question actually also because you now have your long history of T2S which still is there and will still be used obviously, right?

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So m ultimately allowing the settlement of cash and securities at the same time. Now there's plenty of new private initiatives like Axiology. There's 21X also having a TSS And we work together with them with 21X. Yeah, but then there's also this APIA project of the ECB. So my question would also be how to overcome this proof of concept and pilot stage that it seems that the capital markets and maybe also even the payments.

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sector currently is trapped in, right? How to overcome this? Is, for example, Apia the solution where there is one blockchain to rule them all that is then provided by the Euro system? I would rephrase your point slightly, if I may. I say, yes, Apia can be the solution because Apia could, let's say, be an exemplary blockchain where you can do

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certain things where certain formats are being used and of course Apia must be open source for this i.e. that all others could freely borrow or connect to Apia. And this would be for me a kind of T2S like approach to bring about standardization harmonization in DeFi without destroying the value of having various platforms. I cannot imagine

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the ECB platform to be the one platform that everybody is going to use. It's not going to happen, but the ECB platform could be the standard setter, could be the nucleus for interoperability for all the other platforms that will be driving in the European ecosystem. And if the ECB takes up that role, I would be more than happy and as a market infrastructure advisor, this is what I have started doing these days.

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I'm happy to contribute to this, not exactly advising the ECB, but advising my clients how to deal and how to interact with the ECB, with Target2, with T2S, with Apia, with Pontus and all those other infrastructure bits in the European landscape. This is uh my new job, my new idea and I think there is a market for it. Because uh there is so much knowledge.

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from traditional finance that could be usefully applied here in DeFi, I will give it a try. I certainly will do that. Yeah, so no lookout for retirement soon, if I hear you correctly. Not yet. Not yet. There's still a lot of Bundesbank economist says that we have to work until 70 and my answer is why not? Yeah, exactly. So, understood there's still some...

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efforts we will see in the market from you, which is I think highly appreciated because of this breadth of knowledge and background to this tremendous career. Now, looking at the time, are running a bit late already, but I didn't want to interrupt This all your fault, Manuel. No, no, I didn't want to interrupt at all. This was fascinating to listen to and I hope we can also continue that discussion again. Jochen, thanks a lot for coming to the podcast and for...

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sharing this overview in particular also hopefully interesting to our listeners on the past and all these initiatives that you run through as Director General Payments and Settlement Systems at Bundesbank which ultimately shaped the reality today where I believe the industry can learn a lot from all your experience. thanks a lot for sharing. Manuel, let's have a walk on we are up here someday. And actually I think this week

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or next week is the next week. This week is an info session and next week is then let's a kind of another take on what the info session was producing or no, it's called focus session. the focus session. So lots of things developing throughout this year and also next year in the Euro system or the next years to come. So I'm very happy to stay connected and invite you again to discuss. No, thanks Manuel. It was a

01:13:07
Nice talking to you and let's say sharing some of my experience. Absolutely. Thanks for coming to this podcast and yeah, dear listeners, if you like that episode, make sure you share it with your colleagues that might also find it interesting. Give us a like on the social media channels that you use and we hope this was interesting to you as well. Thanks for tuning in and hear you next time. Goodbye. Goodbye.