

Blockchain in Banking

Lessons from Early Adopters

Introduction

We present a refined version of our panel discussion that brought together executives from two pioneering European banks: **Łukasz Wiśniewski** from **PKO BP** (Poland's largest bank) and **Adam Retkes** from **Bank Frick** (a leading private bank in Liechtenstein).

The discussion revealed fascinating contrasts in implementation approaches. **PKO BP takes a methodical bottom-up strategy** focused on traditional banking services, while **Bank Frick pursues comprehensive integration of crypto services**. These different paths highlighted how regulatory environments in Poland and Liechtenstein influence blockchain adoption, offering valuable lessons for institutions at various stages of implementation.

Whether you're revisiting the conversation or discovering these insights for the first time, this document provides valuable perspectives for **banking professionals**, **fintech leaders**, and anyone interested in the intersection of **blockchain and traditional finance**.

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Participants



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Meet Our Banking Experts



Łukasz: I'm leading the **blockchain team at PKO Bank Polski**. We have three programmers and analysts, capable of producing full applications based on blockchain technology. We started blockchain experiments as a bank in **2017**, and I joined in 2018.

We're a **universal bank**, offering all types of basic financial products like deposits, credits, and insurance in our capital group. As a blockchain team, we've had the opportunity to explore almost every field of the finance sector, proposing blockchain projects and products. Being **Poland's biggest and oldest bank**, we're careful about what we do – we care deeply about our reputation. Having the Polish złoty rather than the euro is advantageous for our **stablecoin projects**.



Adam: I work in blockchain banking, developing infrastructure projects and exciting new services for our clients in **Bank Frick**, a private bank headquartered in Liechtenstein. Bank Frick started as a correspondent bank for institutional clients and has grown to encompass **four major business fields**: classical banking, funds and capital markets, e-commerce, and **blockchain banking**.

Motivations Behind Blockchain Adoption



Łukasz: We have a **bottom-up approach** through our innovation office, where we wanted to explore whether the bank could benefit from blockchain-based products and possibly create **peer-to-peer networks** with other banks.

In our bank, the innovation teams develop proposals and then present them to the relevant business units. For example, when creating security tokens, we had to go to the brokerage house for their evaluation from financial and risk perspectives. It's about people being curious about technology and exploring its potential.



Adam: At **Bank Frick**, we've always pushed to expand technological boundaries. In **2018**, we saw a shift in institutional interest and began offering professional trading and secure custody of major crypto assets. Since then, we've expanded into various blockchain banking services, from **tokenizing securities to staking**.

Motivations Behind Blockchain Adoption



We're continually expanding our asset universe almost quarterly. The motivation came from seeing institutional clients' needs - many blockchain technology-based hedge funds, high-frequency traders, and algorithmic traders needed secure crypto storage and portfolio valuation services. It was an eye-opener that someone needed to fill this gap for institutional clients.



Lukasz: So Adam, was profit your main motivation? Were you focused more on crypto trading and financial results rather than exploring blockchain's value and possibilities?



Adam: We were responding to our clients' requirements for a more comprehensive product portfolio. Having many institutional clients and hedge funds already, **we saw an opportunity to extend beyond traditional securities into crypto assets.** It was a natural evolution of our services.



Blockchain Analysis in Action: Real-Life Use Cases and Insights

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Main Challenges in Adoption



Lukasz: Having many **retail clients**, and maintaining reputation is crucial for us. Research shows that if one product generates negative emotions or experiences, it influences other products. We need to protect our basic banking products from negative cryptocurrency associations, especially since it's challenging to differentiate between blockchain-based projects that create value and those that don't.

The **legal framework** is another major challenge. When creating new tokens like **stable-coins** or security tokens, we need financial supervisor approval. While we have more trust than startups because we have "skin in the game," the process is lengthy.

The **business case** is also challenging. With cryptocurrencies seen as a reputational threat, it's difficult to construct profitable models. As a commercial institution, we need projects to be not just profitable, but competitive with other initiatives. However, these challenges are less daunting than the reputation and legal framework issues.

Main Challenges in Adoption



Adam: **Trust** is essential in banking - it's the foundation of the two-tiered banking system. In Liechtenstein, we're fortunate to have the **Blockchain Act** early on, providing a legal framework for crypto services. However, implementation brought its challenges.

The first challenge was technical infrastructure - running nodes and finding **enterprise-grade providers** for custody systems. In 2018, there weren't many established providers for institutional-grade custody technology. We started with just the major cryptocurrencies - the most trusted and least volatile ones - and expanded incrementally.

Our **custody system** evolved to include sophisticated **blockchain forensic tools** for screening assets. We don't allow coins from illicit activities or tainted funds. It's a robust infrastructure supported by multiple trusted providers and our compliance department - truly a massive cooperative effort.



Łukasz: On the technical side, we found that having even one passionate blockchain programmer can be sufficient. We had someone who'd been in the blockchain space since the beginning - even reading Satoshi's original Bitcoin whitepaper. Most of our applications are primarily non-blockchain. However, for cryptocurrencies and trading, I wouldn't recommend building an in-house custody system.

Main Challenges in Adoption



Adam: But managing multiple layer-one chains requires diverse expertise - **Rust**, **Solidity**, and various other languages. Each blockchain has its syntax and specialties. Building on Ethereum or Bitcoin might be straightforward, but supporting ten different layer-one coins is much more complex.



Łukasz: True. For our **stablecoin** and **security token** projects, we use standard smart contracts. We initially tried **Hyperledger Fabric**, but it proved challenging. While technology presents its challenges, our main hurdles remain in the **legal and reputational** spheres.



ETFs and massive crypto adoption

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Regulatory Compliance



Adam: I constantly consult our **regulatory compliance department** which works solely on this complex topic. We have many talented professionals screening every legal change and amendment in this space, determining how to implement them while staying compliant.

The scope is immense - one or two professionals couldn't comprehend all its dimensions. We carefully limit our interactions at both bank and infrastructure levels. For instance, we avoid **DeFi lending/borrowing protocols** where funds of questionable sources can flow through the system - smart contracts and decentralized apps typically can't differentiate between tainted and clean funds. The same applies to **decentralized exchanges**.

We exclusively interact with **whitelisted wallet addresses** and smart contracts, conducting thorough due diligence through a dedicated department. It's a complex system requiring many specialized professionals to maintain regulatory compliance. This applies to everything, including tokenized deposits - it's all quite tricky.



MiCA Regulations and Their Impact on the Crypto Industry

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Lukasz: We've been experimenting with **stablecoins** since 2019, though not with tokenized deposits. With **MiCA** and **CASP** coming, it's evolving, but currently, in Poland, we lack specific regulations for crypto and blockchain technology. We only have cryptocurrency taxation and **AML requirements** based on EU law.

We must develop our legal definitions for tokens. Fortunately, as a bank, we already possess various licenses for financial operations. While we can't operate a secondary market, we typically choose an existing framework and report to the financial supervisor. Getting permission is slow, but compliance becomes manageable once they approve our token structure. We don't yet need extensive **KYT** or source of funds reporting, though this might change.



Adam: Let me add that in Liechtenstein, we can always consult the **Financial Market Authority**. They serve as our safe haven before launching or designing any product - they have the final word on unclear matters.



Lukasz: How long do you typically wait for their response?



Adam: The **Liechtenstein Financial Market Authority** is exceptionally responsive and agile. That's why they pioneered the **Blockchain Act**. We have clear frameworks for crypto services, **AML/KYC**, and compliance directives. Longer waiting times only occur with new services or questions outside existing frameworks - innovation always brings some challenges.

Risk Management and Security



Adam: We use multiple tools including **blockchain forensic tools** and the tool for exchanging regulatory messages with counterparties and virtual asset service providers. We conduct due diligence on all crypto withdrawals and deposits.

Importantly, we're dealing with **client assets**, not Bank Frick's own crypto assets - they're off our books as assets under management. This is crucial because holding crypto assets would require enormous equity for balance sheet purposes. These client assets are stored with maximum security - **private keys** for segregated wallets are encrypted in **hardware security modules**, using enterprise-grade and banking-grade technology.

We work with trusted **prime brokerage partners** for trading and **validator service providers** for crypto staking. Our risk management involves extensive due diligence not just on clients, but also on all counterparties and partners. It's a sophisticated, comprehensive system.



Łukasz: From my perspective, we're more focused on **tokenizing bonds or stocks**. In these cases, you're mainly changing the technology while maintaining existing risk management and security practices - the core functions and client assessment remain largely the same.

It's even simpler when dealing with products without assets, just using blockchain for storage and verification. A **private network** carries less risk regarding technical issues or processing mistakes. You can manage issues through your network partners and maintain control over the process. While blockchain is meant to be irreversible and tamper-proof, our approach at PKO with our network has been more about learning and development.



Adam: That's a crucial distinction for this discussion. When I discuss blockchain or crypto, I'm referring to **permissionless chains** where anyone can run nodes and interact with the code. Your work with stablecoins involves **permissioned chains** developed with partners - it's a completely different category.

Advice for Financial Institutions



Łukasz: The best advice after our previous discussion would be to start a project in Liechtenstein with Adam and their public authorities! But seriously, if you can't pursue cryptocurrency projects due to **reputational risks** or other issues, I suggest finding a real **business need** within your organization. These often emerge from regulatory changes where the company needs to implement new applications or systems.

When you have resources and organizational influence, you can propose solutions. They don't need to be exclusively blockchain-focused - you can add blockchain experiments as an additional component, using perhaps **10-20% of project time**. This is a slow process, taking years, but it prevents constant budget and resource concerns. It gives you time to work with specific units like the brokerage house, building trust and understanding gradually.

Advice for Financial Institutions



In our experience, it wasn't worthwhile to educate the entire organization at the management level, as board members frequently change. Instead, focus on educating specific departments like **AML** and **cybersecurity**, and only to the extent they need. First, educate these teams about their relevant aspects, then wait a couple of months before presenting your projects - let them process the information and perhaps research independently. This staged approach works better than trying to do everything at once.



Adam: When it comes to crypto, I couldn't agree more. As Łukasz noted, before any crypto experimentation, confirm with your **financial market authority** what's allowed and in what framework. Otherwise, your experimentation will never become profitable. This should become easier in 2025 when **MiCA** (Markets in Crypto Assets regulation) comes into force in the European Economic Area, creating a unified framework for financial institutions to provide crypto services, starting with basic ones.

If you have regulatory approval to provide crypto services, I strongly recommend a **B2B2C approach**. Partner with established blockchain banks - it's already working successfully in Switzerland, where dozens of banks offer crypto custody or trading to retail clients through this model. Many blockchain banks are already providing services to other banks, similar to correspondent banking relationships but in the crypto world. This is how one-third of the Swiss population now has access to crypto services.

Advice for Financial Institutions



This partnership approach means you don't need to run your nodes or find separate partners for custody, brokerage, travel rule compliance, forensic tools, on-chain data sources, and other services. If you're interested in staking, you can work with validation service providers. All these aspects can be streamlined through a few key partnerships. That's the paved road forward in the European Economic Area - **find the right partners and build from there.**



Discover Crypto-Friendly Banks Guide

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CBDC Perspectives



Adam: This is an excellent question that relates to my background as a former CBDC consultant. When discussing crypto and CBDCs, we're looking at two poles - public versus private money. With **CBDCs**, we need to distinguish between wholesale and retail varieties.

Wholesale CBDCs are designed for interbank settlement and clearing, enabling instant, 24/7 transactions between counterparties. However, in the European Economic Area, the **SEPA framework** already provides efficient Euro payments. Similarly, Switzerland's Interbank Clearing system works well. The real opportunity lies in global US dollar payments, where different time zones and settlement systems create challenges. A wholesale US dollar CBDC could enhance correspondent banking relationships, though I don't see this happening soon.

For **retail CBDCs** like digital Euro, Swiss franc, or Złoty - if they're non-interest bearing, essentially functioning like cash, I see limited advantages over existing payment methods like credit cards. However, interest-bearing CBDCs could trigger significant changes in bank deposit rates, creating challenges for retail banking.



Łukasz: I have a different perspective - I question the wholesale/retail CBDC distinction and even the entire CBDC concept. The private market, especially banks, naturally prefer stablecoins since they can earn on deposits. For building products with tokens representing national currencies, you don't necessarily need CBDCs. We just need tokens that are tax-efficient and clear from legal and technical perspectives.

The only compelling argument for CBDCs might be enabling innovative **macroeconomic policy tools**. In Poland, our National Bank analyzed CBDC motivations thoroughly. They found limited need since we already have efficient instant settlements, and existing interest rate tools effectively regulate the złoty's value. There's also risk in monetary policy experimentation.

I see greater potential in **stablecoins** enabling smaller companies to innovate. Currently in Poland, handling client funds requires expensive licenses and heavy regulation. With **CASP** and EMT frameworks, companies could potentially develop innovative solutions through hackathons and reach the market in weeks rather than years. While stablecoins are crucial for asset exchange on blockchain, we don't need CBDCs specifically for these processes.

CBDC Perspectives



Adam: I support a future with stablecoins, provided their underlying assets can be redeemed at face value during bank runs. However, there's a fundamental **conflict of interest**: banks prefer stablecoins because they can maintain higher credit rates and lower deposit rates, creating profitable spreads. Central banks worry about losing monetary policy tools if cash disappears and only stablecoins remain. They'd lose the ability to control the monetary base (M0), which is why they're pushing for CBDCs - non-interest-bearing or interest-bearing - to maintain control through interest rates.



Łukasz: One final point about CBDCs - central banks are inherently slow to change, focused more on macroeconomic calculations than market infrastructure. Even with compelling use cases like China's, implementation would take years. While experimenting with POCs is worthwhile, changing backend technology is challenging for both commercial and central banks, particularly local ones like our National Bank of Poland.

Future Trends in Banking Blockchain Adoption



Łukasz: I can share what I hope to see. Currently, when we want to standardize tokens for exchange with other parties, we need to consult with them, but in the Polish banking sector, we only have two full **blockchain teams**, both in PKO BP. While there are representatives from **Santander**, **ING**, and another bank also called Pekao (which might be interesting for foreigners, but they're totally independent), they don't have dedicated units to fully discuss concepts and contribute to blockchain development.

I hope that when we get the **CASP license** in Poland, more banks will enter crypto trading, providing these services to their customers. This will necessitate building dedicated teams, making it easier to work on digital assets and develop new solutions. I believe we need **2-3 years** to reach a point where we can meaningfully discuss tokenizing assets beyond just crypto trading in mainstream Polish banking.



Adam: I think it's important to differentiate between two major trends in the crypto space:

1. For the general banking population - we're moving toward significant **retail adoption** globally, particularly as regulations become clearer in the European Economic Area. We're seeing evidence of this weekly, with more **institutional ETFs** launching worldwide. More **layer-one protocols** are being offered to retail clients, suggesting that future offerings won't be limited to Bitcoin and Ethereum, but will include a broader range of cryptocurrencies.
2. In the crypto-native population, which is equally fascinating, we're seeing established **staking services** evolving into new forms. **Liquid staking** has already gained significant traction in the space. More recently, **restaking** has emerged as a hot topic, with companies like **EigenLayer** and others developing innovative solutions. Even in the Bitcoin space, we're seeing **BTCfi** emerge as a new concept, where projects are finding creative ways to generate yield on Bitcoin deposits - something traditionally impossible due to Bitcoin's consensus mechanism limitations.

These trends are interconnected - as the mainstream adoption grows, it will enable and accelerate the development of more sophisticated crypto services. The former trend will increasingly support and drive the latter over time.

Mass Adoption Outlook



Adam: With **MiCA regulation** in the EEA, widespread adoption seems inevitable. Projects like **EtherFi** and **Osmosis** are launching card programs where consumers can pay at any shop using crypto in the background, instantly converted to fiat. Adoption is accelerating on multiple fronts.



Łukasz: We need to define what “mass adoption” means. In Poland, **3 million people** already trade crypto without banking sector involvement, and **5 million PKO clients** use blockchain technology unknowingly. True mass adoption will likely be invisible to end users - I’m not talking about trading, which is a separate case, but rather innovations useful in everyday life.

Most clients don’t want to see technical aspects like hashes in messages - they complain when they do. I believe mass adoption will manifest through companies developing new financial applications that weren’t previously possible. These apps will appear in app stores, and people will simply download and use them without realizing they’re blockchain-based.


Mass Adoption Outlook



The focus should be on **companies building blockchain products** rather than individual trading adoption. Trading has natural limits - not everyone invests in stocks or bonds. The real opportunity lies in creating new types of products and innovations that serve practical purposes in people's daily lives.

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Q&A Session

The Q&A section addresses three key questions from the audience: the security and regulations of **Bitcoin flows** between Switzerland and the EU, the current state of **real-world asset tokenization** in European banking, and approaches to **blockchain education** and community engagement.

Cross-Border Bitcoin Flows

I am subject to a big challenge for financial flows between Bitcoin abroad and sales in Switzerland. Will the security of banks be well protected? How is this regularized in the European Union and Switzerland?



Adam: For BTC flows between jurisdictions, the key is a clear **source of funds**. Blockchain banks screen all incoming tokens and once verified, they enter the regulated financial system for trading in both the EU and Switzerland. While the EU is regulated by the European Central Bank, Switzerland operates under different regulations. Liechtenstein, being in the EEA, follows EU-aligned regulations. The security comes from thorough checks, even for self-hosted wallets.



Łukasz: Regarding security, banks typically rely on market-leading solutions rather than building their systems. It's more efficient to use established custody providers and validators, audited by major firms. While **MiCA** technical requirements are still developing in Poland, custody remains the highest risk in crypto trading.

Real-World Asset Tokenization

The banks in Turkey are preparing for RWA tokenization following new capital markets law. What is the position of European banks on RWA tokenization projects?



Łukasz: Honestly, I haven't seen a proven, profitable **RWA tokenization** case yet. Most projects are 90% marketing and experimentation. Unlike crypto trading, which has clear business cases, creating new asset flows through tokenization remains challenging. We need several more years to develop truly useful cases.



Adam: A crucial point: tokenizing an **illiquid** asset doesn't make it liquid. You need marketplace liquidity regardless of tokenization. Projects tokenizing gold, stocks, and securities on permissionless chains haven't gained significant traction yet, but we hope for improvement.



Tokenized Assets and Real-World Assets (RWA) Revolutionizing Investment

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Educational Initiatives

Are there specific initiatives to help people understand digital currencies? How can we make these innovations feel safer and more relevant?



Adam: Bank Frick actively participates in conferences to promote safe digital currency usage. We partner with European NGOs, helping them accept crypto donations safely and compliantly. Raising awareness about responsible usage is crucial.



Łukasz: I'm skeptical about general blockchain education. While we support some blockchain initiatives and **hackathons** in Poland, mass education isn't essential. Good documentation exists online for interested parties. Our focus should be on developing useful products rather than broad education campaigns. Hackathons prove more valuable for innovation than general education efforts.

About ULAM LABS

We are your complete blockchain partner. Since 2016, **ULAM LABS** has been delivering secure, human-centric products that meet business needs.

Our expertise spans across several key areas, including **blockchain services**, **smart contract audits**, and **product design and development**. We specialize in building a comprehensive range of solutions, from **DEXs** and **DeFi platforms** to **wallets**, **governance systems**, **dApps**, and **NFT marketplaces**.

We speak blockchain fluently, leveraging top-tier networks like **Aleph Zero**, **Alephium**, **Aptos**, **Avalanche**, **BNB Chain**, **Ethereum**, **Near**, **Optimism**, **Polygon**, **SEI**, **Solana**, and **Sui**. Inspired by the mathematical brilliance of **Stanisław Ulam**, we are driven by a passion for discovery and creativity that shapes everything we build.

9+ years

Of being a trusted provider in the Fintech and Blockchain industry

70+

Experienced Developers

Success Stories



Ledger, renowned for its secure cryptocurrency hardware wallets, collaborated with us to expand the capabilities of its devices to support complex transactions on the Algorand platform.



CYBAVO, a Singapore-based leader in blockchain security, entered the NFT market using our OpenNFT marketplace framework. We built a custom NFT marketplace with integrated custody solutions.



Pact is a decentralized Automated Market Maker (AMM) protocol on Algorand. As the Foundation's technical partner, we delivered end-to-end development, including smart contracts, architecture, and protocol improvements.

**Get in touch with us to
discuss your project.**

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