

# ► Security Tokenization

How to unlock hidden value by moving stocks, bonds, and funds on the blockchain

---

# INSIGHTS

## //01

Moving traditional financial assets on the blockchain enables promising new value propositions for participants in financial markets

## //02

Security tokens have the potential to reduce the regulatory burden on market participants in the EU for the first time in 15 years, resulting in significant simplifications along the E2E value chain

## //03

Cost savings in the processing of tokenized securities compared to traditional, off-chain securities amount to 35–50 percent

## //04

Financial institutions must act now and actively formulate entry strategies and evolve along the digital asset learning curve

# Security tokenization — unlocking hidden value

Cryptocurrencies have been making a lot of noise since the two explosive rises in Bitcoin market capitalizations in late 2017 and early 2021, at times overtaking the market capitalization of giants like Amazon, Saudi Aramco, or Alphabet. Peaking at over USD 1.1 trillion in November 2021, it took heavy, overproportionate losses until June 2022 amidst overlapping global economic and political crises. Crypto scandals like the crash of the UST stable coin as well as the FTX collapse contributed to these losses, leading to a situation in which by late 2022 more than 75 percent of all Bitcoin investors had incurred net losses with their Bitcoin investments.<sup>1,2,3</sup> Despite recent price recoveries, this poses the question whether market participants are witnessing the failure of the underlying distributed ledger technology (DLT) or rather the dissolution of yet another gold rush, this time having infected not only Wall Street bankers but also young, affluent and “hip” elites around the world?<sup>4</sup>

This paper argues that the latter is the case, as the use cases of cryptocurrencies as a subset of digital assets only touch the surface of what the underlying DLT holds in terms of disruptive potential. Simply ignoring DLT is therefore not an option. At center stage, the disruption potential for security tokens is analyzed. Security tokens represent traditional financial assets such as bonds, funds, and stocks that have been moved on the blockchain.

As many leading companies such as DWS, DEKA, or Hauck Aufhäuser Lampe already issue, trade or provide infrastructure services for these tokens, prestigious non-financial companies such as Siemens are also entering the security token space with increasing speed.<sup>5</sup>

In February 2023, Siemens announced the issuance of a one-year, EUR 60 million bond (“Inhaberschuldverschreibung”) with financial industry giants such as DZ Bank, Union Investment, and DekaBank amongst the buyers. Due to the shortening of the process chain (including the removal of third parties such as a central security depository (CSD)), the settlement time of this issuance was reduced from t+7 days to t+2 hours compared to ordinary, off-chain bond issuance, including a 15 bp pickup for the investors.<sup>6</sup>

The disruption potential of security tokens touches, for example, on the breadth and availability of capital and investment sources or the cost, speed, and risk of financial transactions. Most importantly, it is demonstrated in this paper that DLT offers new and exciting business opportunities for a wide range of market participants, including banks, asset managers, and treasury departments of large non-financial companies.

After a brief excursus into the different types of digital assets as well as their new value propositions, the focus lies on the following four key takeaways:

# 01

## **Moving traditional financial assets on the blockchain enables promising new value propositions for participants in financial markets**

Insights will be given about the wide array of exiting new value propositions that come along with moving traditional financial assets on the blockchain. Also, a growth estimate for these tokenized assets is provided and the adaptation factors for this growth analyzed — such as regulatory environment, market infrastructure, and a functioning and trusted stable coin market.

# 03

## **Cost savings in the processing of these tokenized securities compared to traditional, off-chain securities amount to 35–50 percent**

The paper sheds a spotlight on the impact of security tokens on their traditional E2E value chain, thereby having a big impact on the future operating models of financial institutions such as asset managers and private banks and even treasury departments of large non-financial companies (e.g., those with a large hedging business through derivatives). Ranging from efficiency improvements to the complete elimination of certain middle- and back-office (MBO) functions, cost savings in the processing of securities between 35–50 percent are forecast. At the same time, settlement time reductions of more than 90 percent as well as significant counterparty risk reductions are possible.

# 02

## **Security tokens have the potential to reduce the regulatory burden on market participants in the EU for the first time in 15 years, resulting in significant simplifications along the E2E value chain**

Major regulatory simplifications already seen in the DLT Pilot Regime as well as other regulatory initiatives are discussed, significantly simplifying, e.g., clearing, settlement, and reporting of securities transactions.

# 04

## **Financial institutions must act now and actively formulate entry strategies and evolve along the digital asset learning curve**

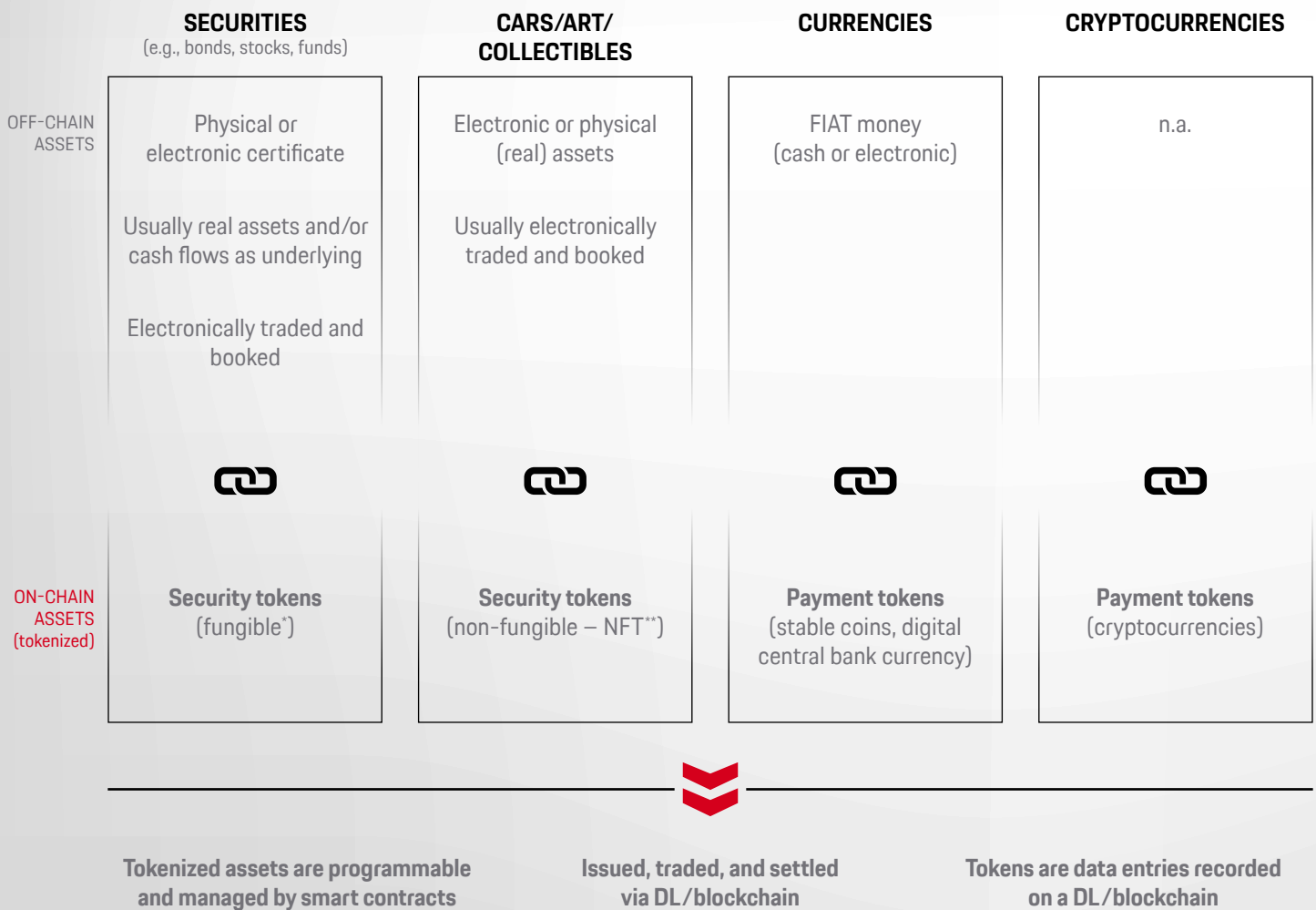
A case for market participants is made to think about their entry into the world of digital assets in a holistic, strategic way, covering thorough E2E monetization analysis as well as important IT architectural decisions (including classic make-or-buy considerations).

# Understanding digital assets

Digital assets rely on Distributed Ledger Technology (DLT), which is why a brief introduction of this critical enabler is provided first. DLT represents a special form of decentralized data recording and processing. It enables the time-accurate logging of data and prevents its unauthorized deletion and subsequent modification. In this context, the blockchain represents a subset of DLT technology: While the blockchain makes concrete specifications regarding the concatenation and sequence of individual data blocks, DLT is more open and

flexible. This also applies to the consensus procedures (e.g., proof-of-work, proof-of-stake) in connection with transactions carried out and the general network organization.<sup>7</sup>


Digital assets can be stored in the form of special data inputs made on the distributed ledger (DL)/blockchain. These data inputs are called "tokens" and represent ownership of specific assets.<sup>8</sup> Some of the most important types of asset tokenizations are provided below:



\* May also include, e.g., cars/art/collectibles if fractioned into standardized, homogenous tokens. \*\* May also include native NFT's such as electronic art.

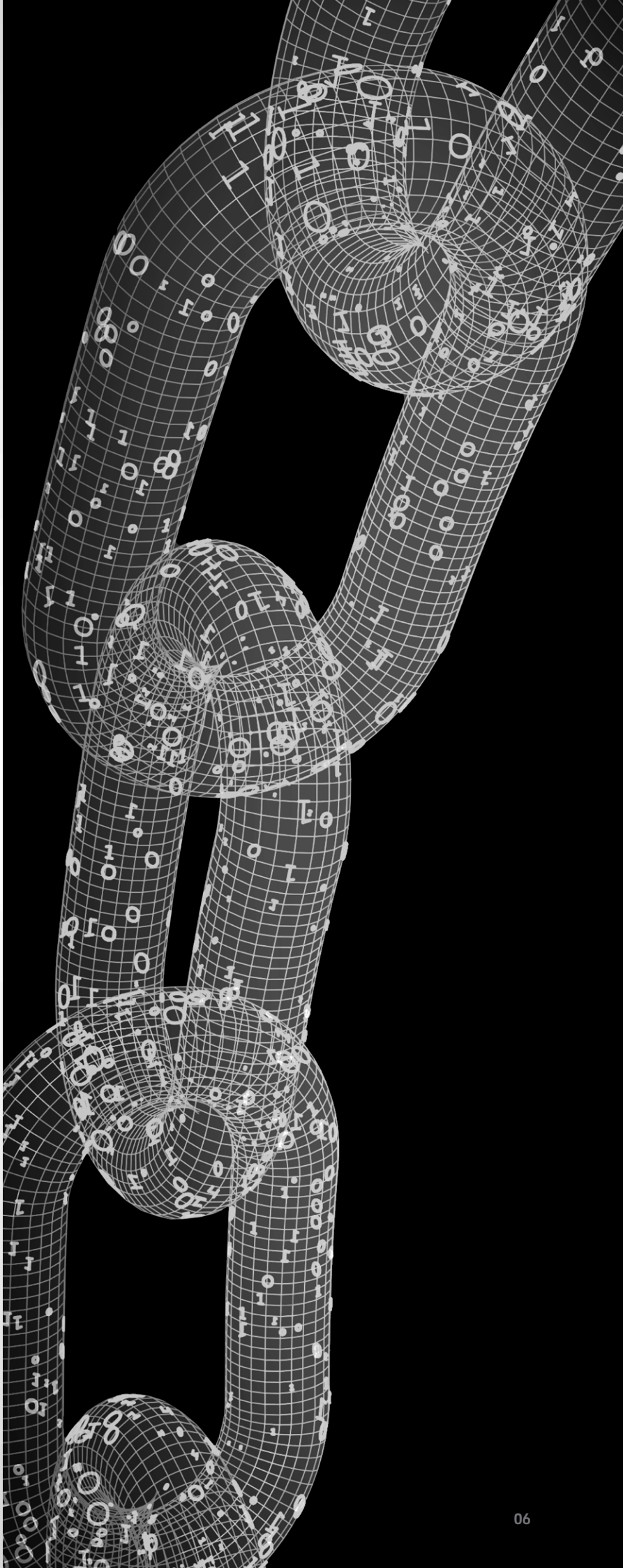
Fig. 1. Different forms of tokenized assets

Security tokens document ownership claims to assets that already have real, intrinsic values such as company shares, real estate, or vintage cars, and differ in terms of their fungibility. Applying this concept to a traditional stock — such as that of a DAX 40 company — would mean that the stock's underlying, in this case the combined worth of the company's assets, would remain untouched, but that the representation of its ownership claims would be displayed and stored on the blockchain.



Crypto securities are a German specialty under the German eWpG<sup>9</sup> and are — despite some important distinctions — comparable to fungible security tokens (see Chapter 03).

Payment tokens document ownership claims to assets that do not — similar to today's fiat money — represent intrinsic values themselves. In the case of stable coins and central bank digital currency (CBDC), these tokens usually represent ownership claims to cover means of payment. This paper considers typical cryptocurrencies more as an asset class in which the underlying assets have no intrinsic value.<sup>10</sup> What tokenized assets have in common, however, is that they are programmable and can be managed using smart contracts. Smart contracts are small computer programs that regulate the transfer, access to assets on-chain and thus also establish an automated, forgery-proof settlement and asset servicing between the parties involved. The largest smart contract platform today is Ethereum.<sup>11</sup> The next chapter will focus on the concrete value proposition of security tokens.



# VALUE PROPOSITIONS

of security  
tokens



In the financial services sector, security tokens claim numerous value propositions that have real disruptive potential for participants in financial markets:



© Porsche Consulting

Fig. 2. Value proposition of digital assets.

**1// Broadening capital sources**

Security token offerings (STOs) are a new means to raise capital in addition or in exchange for traditional non-DLT IPOs. This can, for example, also be achieved through the issuance of a DLT-based bond.

**2// Broadening investment universe**

Non-fungible tokens (NFTs) and fungible tokens offer new opportunities to trade and invest real assets or previously illiquid assets.<sup>12</sup> Also, investment in newly listed, small and medium-sized companies, e.g., through the purchase of tokenized bonds, is made possible.

**3// Asset fractionation**

Tokenization allows the digital mapping and denomination of assets, while their nominal values can be freely modified to better fit investor needs. Also, revenue streams of assets can automatically be distributed amongst token holders.

**4// Reduction of transaction costs, faster settlement, and less risk**

Smart contracts can automate and significantly speed up certain MBO functions (e.g., capital measures). Also, a reduction of intermediaries is possible in some cases, e.g., through the renunciation of central clearinghouses. Furthermore, counterparty risks are significantly reduced through atomic trades.

**5// Reduction of operational costs**

Mid- and back-office (MBO) automation, e.g., through the use of smart contracts or reduction of intermediaries reduces internal effort both in material and personnel needed to carry out these transactions. Simplified processes enable a significant simplification of IT architecture in the steady state.

**Atomic trades:**

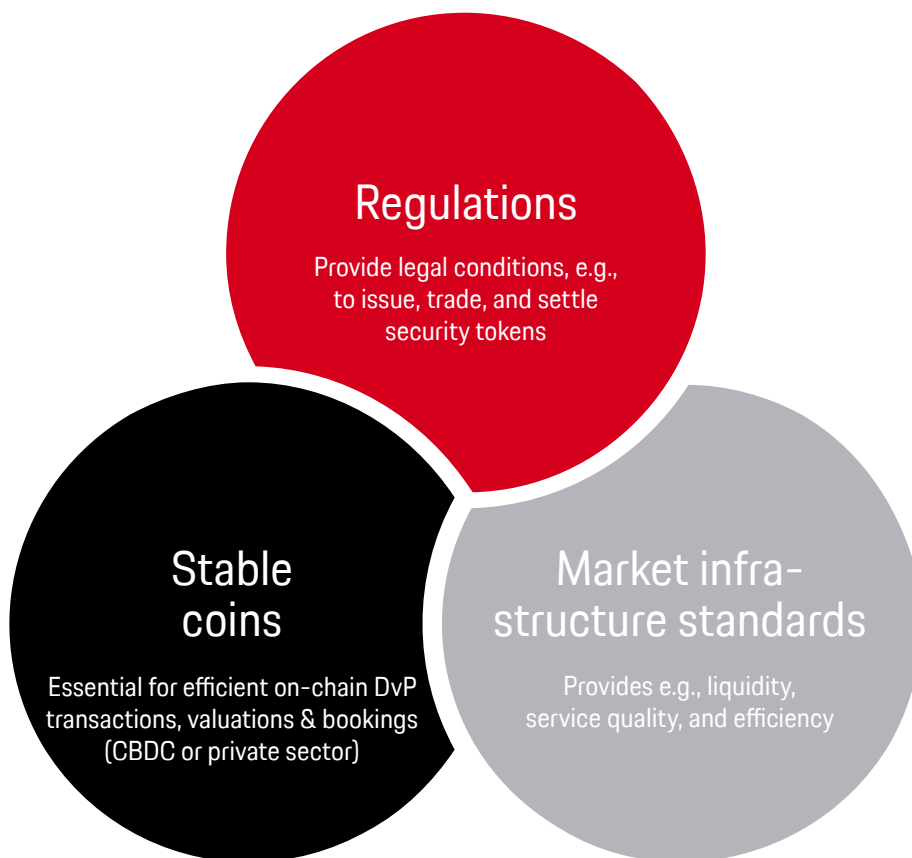
Atomic trades enable, e.g., the exchange of assets (security tokens) with means of payments (payment tokens) in real time through the use of smart contracts, thereby reducing certain transactions risks arising from the time lag between payment and delivery as in traditional trades.



While the first three value propositions focus on the front office and earlier stages of the investment value chain, propositions four and five focus on the MBO effects and their impact on the E2E value chain and therefore on the operating model of digital assets as well. This paper argues that those types of digital assets that provide the most compelling value propositions will enjoy the highest growth. Therefore, it is expected that security tokens will grow at a considerably faster pace than payment tokens, overtaking their market capitalization within the next five years. Alongside many industry experts<sup>13,14,15,16</sup>, traditional assets such as stocks, bonds, or funds will soon start to transform into security tokens at an even greater pace, combined with increasing STO volumes.

To put this into perspective; even a market capitalization of EUR 1.2 trillion, which is roughly the market capitalization of payment tokens today, only accounts for about 1 percent<sup>17</sup> of global financial assets under management, a fact that shows the enormous untapped growth prospects lying ahead.

While every market opinion is only as good as the assumptions and input parameters used, this paper argues that there are three factors that strongly influence the adoption speed of digital assets, therefore serving as the key enablers of the growth projections shown above:



© Porsche Consulting

Fig. 3. Adoption factors of digital assets.

In the following, these adaptation factors are briefly discussed, thereby focusing on security tokens:

**01// Regulation**

Regulation is the force that provides the legal conditions, e.g., to issue, trade and settle security tokens.

At the EU level, a significant effort by EU regulatory bodies to bring forward a holistic European DLT regulatory framework can be observed. Payment and utility tokens will thereby mainly be regulated through the MiCA initiative starting in 2024. Security

tokens will be covered by the DLT Pilot Regime starting in 2023, a "sand box" regulation aimed at testing the E2E value chain of security tokens in "real life" with strict boundaries regarding aspects such as trading volumes and asset types. Loosening of these boundaries (incl. stock investments) is expected as early as 2025/2026, around the same time as market participants might see the digital euro.

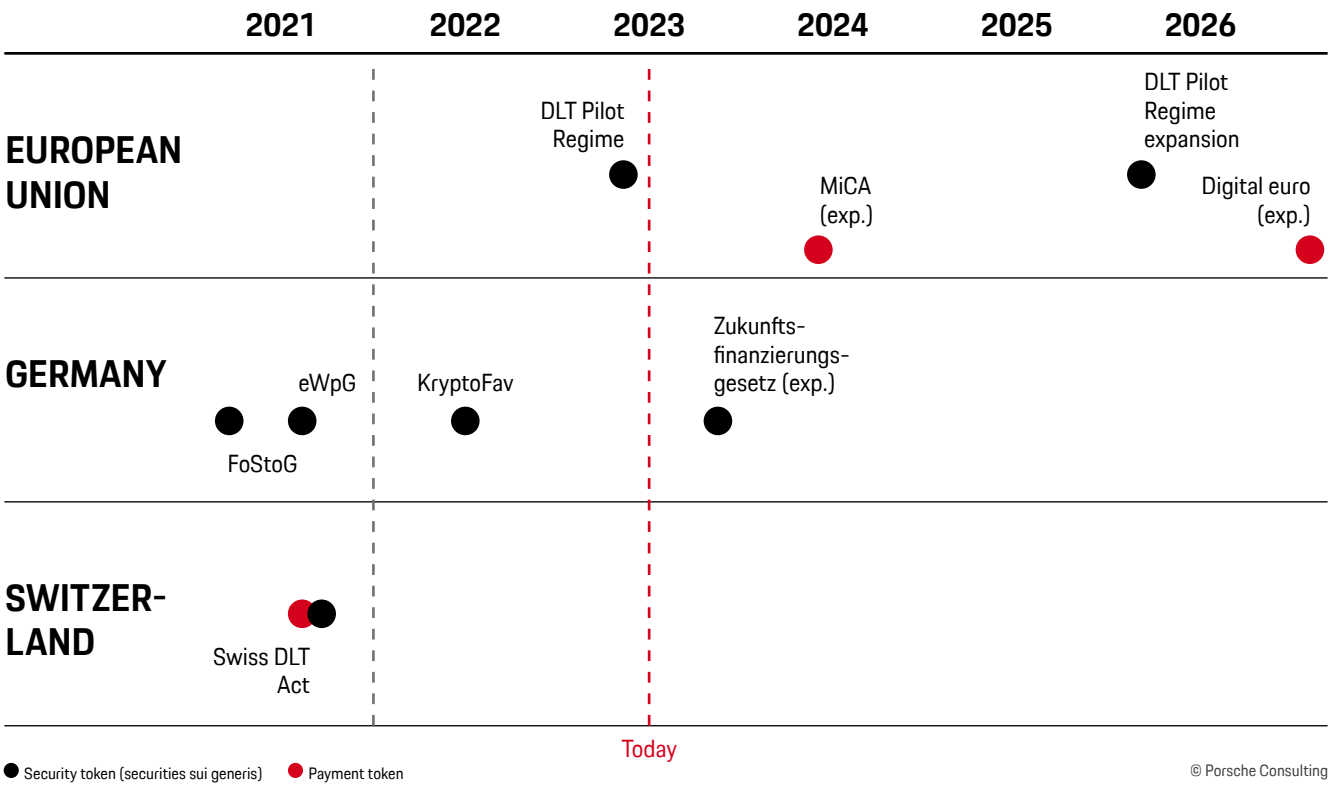


Fig. 4. Regulatory road map.

At the EU domestic level, some EU countries are "front-running" EU initiatives, e.g., Germany with its already adopted eWpG in 2021, which introduced crypto securities as a new, regulated form of security token (as of now, mainly bearer bonds

are covered, with restrictions to secondary market trading). "Crypto fund shares" covered by the KryptoFav (Verordnung über Kryptofondsanteile) in June 2022 extend the range of investable security tokens to funds. Also, as of 2021 the FoStoG

---

(Fondsstandortgesetz) has enabled open alternative investment funds to invest up to 20 percent of their assets under management in digital assets. With the planned "Zukunftsfinanzierungsgesetz," which is expected to be introduced before 2024, additional, ambitious expansions of existing legislation such as the eWpG are planned, such as incorporating stocks into the crypto securities definition as well as further reaching secondary market trading of these securities.

### **02// Market infrastructure**

The market infrastructure provides, e.g., the required liquidity, service quality, standardization and efficiency to sustainably attract market participants. While the infrastructure (including the provider landscape) for payment tokens is already highly developed (especially due to fewer regulatory restrictions, e.g., for second market trading) the security token landscape is still in development at or near the speed of the above-mentioned regulatory landscape. In terms of standardization,

### **03// Stable coins**

Stable coins are essential to conduct on-chain delivery versus payment (DvP) transactions, where smart contracts enable the exchange of assets (security tokens) with means of payment (payment tokens) in real time. These are also known as "atomic trades." The use of stable coins instead of "ordinary" payment tokens like Bitcoin or Ether is critically important here, since they reduce exchange-rate risks in comparison with "ordinary" cryptocurrencies (stemming from the conversion of fiat to digital money and vice versa) and also simplify accounting processes and value adjustments for on-chain transactions due to their much lower volatility. The current lack of a widely accepted, sufficiently regulated stable coin currently acts

Non-EU member countries in Europe have also brought forward ambitious regulatory initiatives, e.g., Switzerland with its DLT Act, which allows for extensive issuance, first- and second market trading as well as settlement business of digital assets. This makes Switzerland one of the leading digital asset locations in Europe.

increasing effort and attention is being placed on developing standard protocols such as ERC-20 / ERC-1155 to develop faster and easier ways to connect different blockchain through blockchain bridging techniques.

as a major obstacle in the mainstream adoption of digital assets in addition to the above-mentioned factors. Increased market consolidation in the private stable coin market as well as progress in the vast number of central bank digital currency (CBDC) programs of virtually all major western central banks will likely see major improvement in this area within the next three to five years.<sup>18</sup>

In the next chapter, the reasons to believe that digital assets may play an important part in reducing the regulatory burden for market participants in the securities business within the EU are demonstrated.

# REDUCTION POTENTIAL OF REGULATORY BURDEN

through security  
tokens



---

Since the financial crisis of 2008/2009, there have been several major new regulatory initiatives put forward by ESMA and other regulatory bodies to prevent future crises.

With respect to the securities business, major initiatives include:

- EMIR (European Market Infrastructure Regulation) in 2012 targeting especially the clearing and settlement of (OTC) derivatives business
- CSDR (Central Securities Depositories Regulation) in 2014 targeting the safe and secure settlement of securities through central securities depts
- MIFID II/MiFIR (Markets in Financial Instruments Directive) in 2017 targeting mainly transparency requirements in respect to the buying and selling of financial instruments as well as their reporting

All of these complex regulations have caused significant cost increases not only in their implementation but also in everyday business. Looking at the DLT pilot regime regulation adopted in June 2022,<sup>19</sup> it can be observed that due to the specific nature of the technology behind digital assets, major simplifications apply to all of the above-mentioned regulations.<sup>20</sup>

This is mainly due to the fact that:

- DvP/atomic trades enable instant settlement of trades, making clearing obsolete.
- Instant settlement makes many margining/collateral rules superfluous, since, in the case of derivatives, deviations of the present value are settled in real time, with one side not fulfilling its obligations leading to the immediate closure of that trade at or very near the current market price (PV = 0).
- CSD rules no longer apply as with off-chain investments, since the immediate settlement leads to the ability of the trading venue/MTF to conduct both trading/brokerage and settlement services in a safe and sound way (see DLT trading and settlement systems (DLT TSS as a new provider class under the DLT Pilot Regime)).
- Regulatory reporting requirements may become mostly obsolete since regulatory bodies can directly access transaction data through the DLT database.

Given the current regulatory dynamic and a successful phase-in, the regulatory exemptions put forward in the current DLT Pilot Regime will most likely become permanent once ESMA reviews the regulation and decides upon subsequent regulation in 2025/2026. This would not only lead to considerable reduction of regulatory complexity without decreasing market stability and/or counterparty risks but would also enable significant cost savings for all market participants involved in the on-chain securities business.

In this regard, it is crucial to now turn the attention towards the E2E value chain of digital assets and its implied changes towards the operating model of market participants. With the proper operating model elements in place — adjoined by the required enabling regulatory simplifications — it is possible to reap the promised efficiency gains, especially concerning the later stages of the investment cycle (i.e., MBO functionalities). For the purpose of this paper, the focus lies on E2E value chain of security tokens and crypto securities.

# COST SAVINGS AND EFFICIENCY GAINS

of security  
tokens



As the concrete value propositions of digital assets were discussed in the introduction, the importance of the last two value propositions, namely transaction cost, speed, and risk as well as operational cost, on the E2E value chain and therefore also on the operating model of digital assets were stated. To find out about the concrete impact, this paper takes a closer look at a representative capability map of today's securities business, such as a stock, bond, and derivative:

### E2E security capability map as basis for impact analysis of digital assets

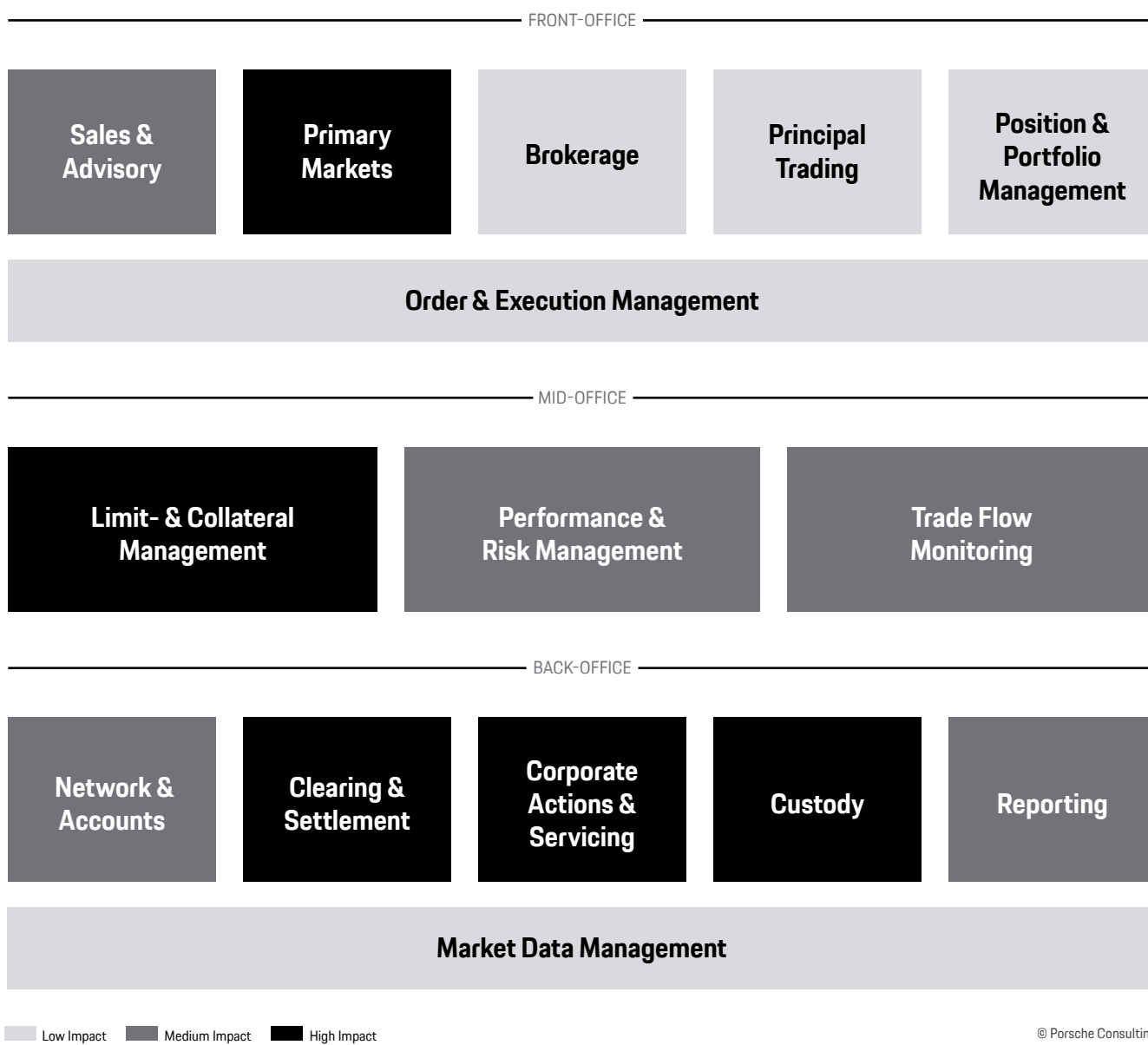


Fig. 5. E2E security capability map.

---

Looking at this capability map, which is structured along the E2E value chain, it can be observed that with the exception of the security-issuing business, the main impact of digital asset technology is on the mid- and back-office (MBO) function. Second market trading as well as DvP/atomic trades via CBDCs are assumed in this scenario. To explain the reasons behind this, five key areas along the value chain are highlighted, in which DA efficiency levers are most prominent:

#### FRONT OFFICE

##### **01// Replacing securitization with tokenization** (e.g., bearer bond)

- Intermediaries such as banks and market makers can be removed. Full digitalization and automation of processes within the same IT platform will follow.
- Smaller issuances possible due to full digitalized processes. This results in lower costs, increased speed, and easier asset fracturation.

#### MIDDLE OFFICE

##### **02// Disrupting collateral management, clearing, and settlement through DvP** (e.g., swaps)

- DvP (delivery vs. payment) is an inherent feature of atomic trades; where time between delivery and payment — and therefore settlement — falls to zero. Settlement risk and counterparty risk are reduced to virtually zero, with one party not adhering to the smart contract (e.g., not payment of purchase price or margins) resulting in the immediate termination of the contract at or near the PV.
- This results in reduced risks and costs while at the same time speeding up the process.

#### BACK OFFICE

##### **03// Automation of corporate actions and asset servicing through smart contracts** (e.g., stock)

- Any foreseeable corporate action events are programmed into the smart contract and incorporated into the terms of trade, enabling fully automated servicing.
- Unforeseeable events can be manually programmed into the smart contract after the sale upon agreement of both parties.
- This results in reduced costs and increased speed.

##### **04// Automated asset transfer to custody wallet** (example: bearer bond)

- Upon settlement, assets are automatically transferred to a crypto vault (in the case of a security token) or to an "ordinary" security deposit upon entry/change in the Wertpapierregister (in the case of a crypto security).
- This results in reduced risks and costs while at the same time speeding up the process.

It comes as no surprise that DA efficiency gains stem from characteristic technology features of DLT such as tokenization, delivery versus payment (DvP), atomic trades, and smart contracts. Interestingly enough, those benefits do not solely comprise cost considerations. In the case of tokenization, asset fracturation and the shortening of the financial transmission chain are also important, as it increases the processing speed and asset fungibility. As with the deployment of DvP, security issues such as the reduction of counterparty and settlement risk apply.<sup>21</sup> The automation of asset servicing and transfers also lead to significant reductions of processing time. Core enablers of these benefits are required IT elements, which comprise key components such as issuance platform, trading platform, custody platform and connectivity layers to connect different blockchains and protocols as well as all other nodes such as trading venues, clients, and trading partners.

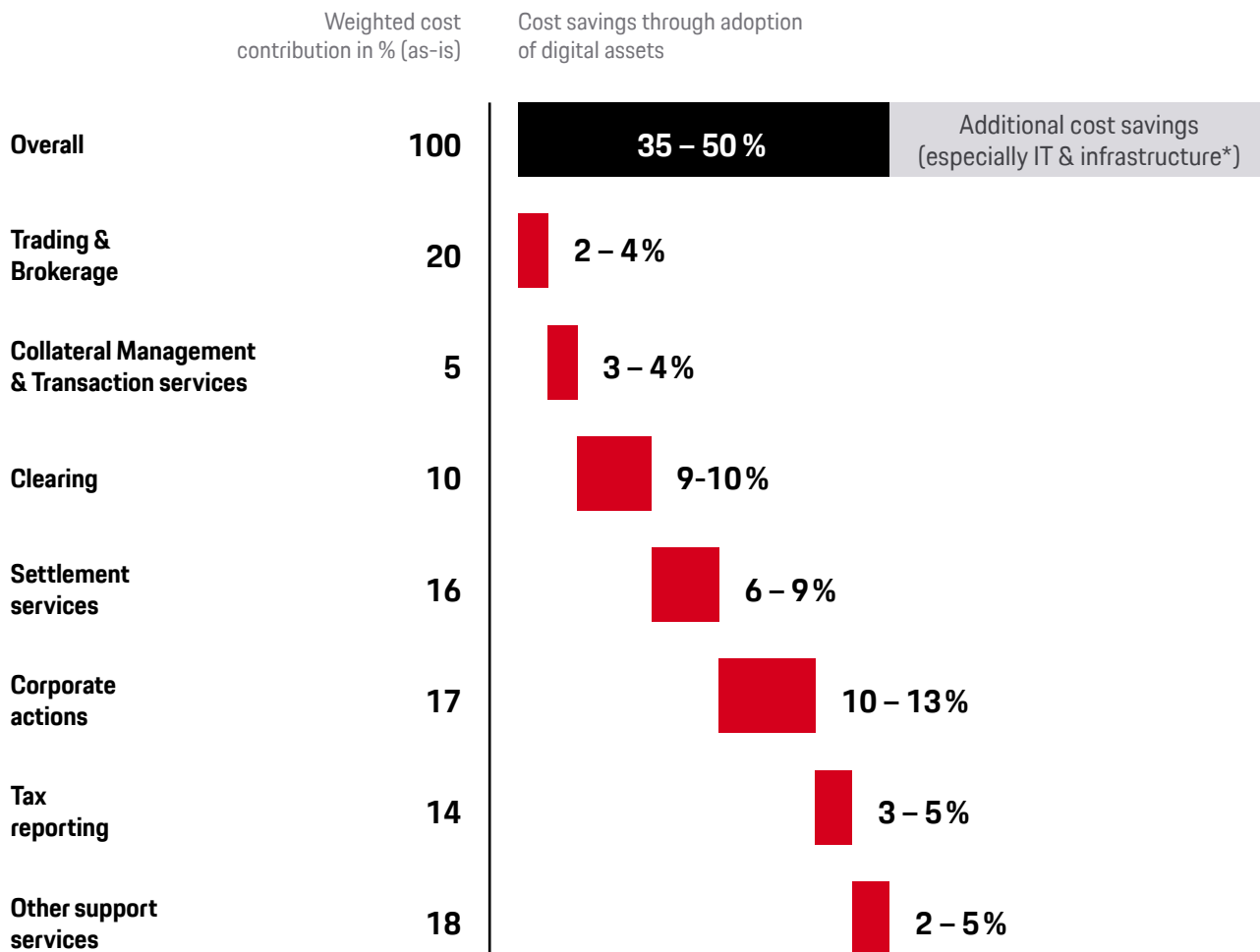


But what is the concrete cost savings potential for the application of digital assets? Out of the few studies available today, savings range from 24–65 percent, although it must be said that these studies partially look at different portions of the value chain and do not focus on the exact

same products.<sup>22</sup> Looking at data models and insights, this paper conservatively estimates the cost savings potential along the securities value chain between 35–50 percent — not taking into account benefits from issuance services and also costs savings through simplified IT infrastructure:

## Securities' costs & savings potential along value chain

<p>Conservative estimate of overall digital asset cost savings potential of 35-50% (not including issuing services)</p>	<p>Majority of cost savings stem from MBO functions, e.g.:</p> <ul style="list-style-type: none"> <li>▶ Collateral Management (-60%)</li> <li>▶ Clearing (-100%)</li> <li>▶ Corporate actions (-70%)</li> </ul>	<p>Additional, substantial cost savings realizable through simplified IT infrastructure (in steady state)</p>
---	---	---



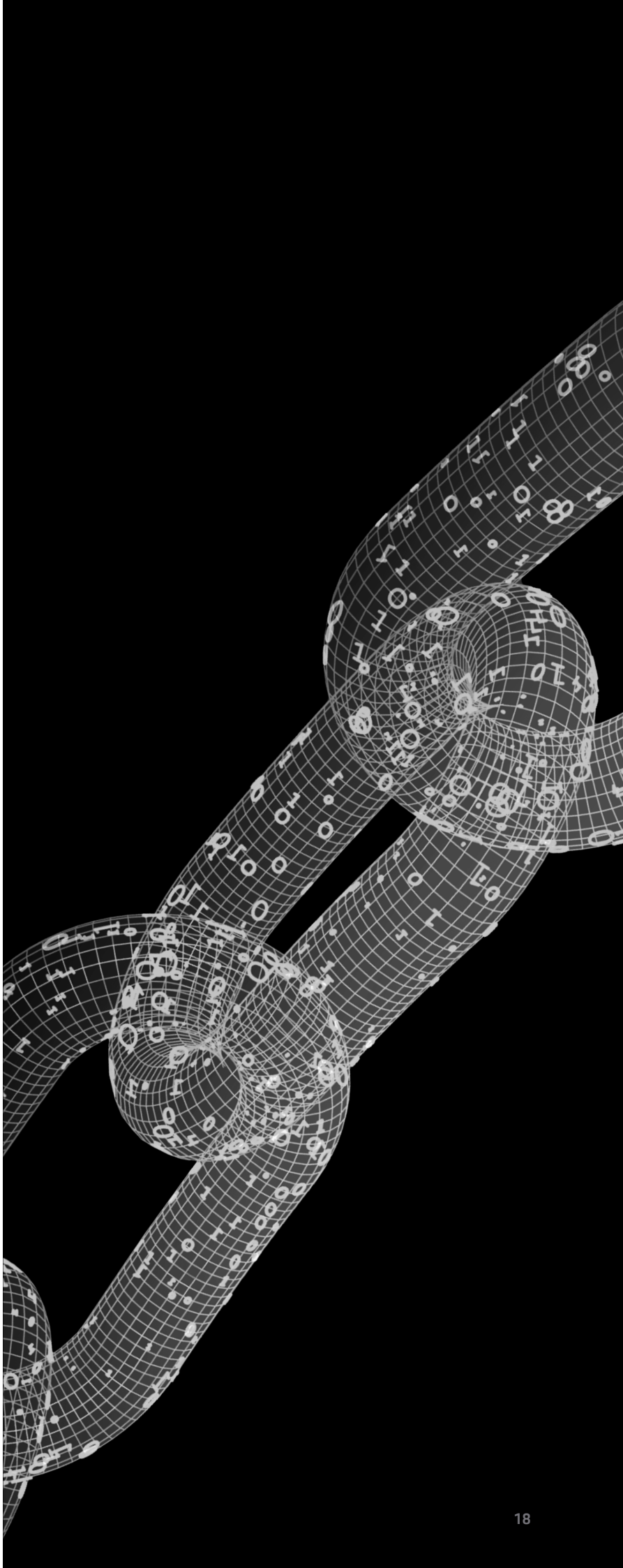
\*Additional cost savings not quantified here

Fig. 6. Data asset costs savings estimate.

---

Unsurprisingly, the main sources of cost savings stem from the above mentioned MBO functions such as collateral management (60 percent savings potential), clearing (100 percent savings potential) or corporate actions (70 percent savings potential). As for the cost reduction potential of the IT architecture, it must be emphasized that from a pure business case perspective, significant decreases in IT costs are not expected in the near or medium future because legacy IT systems will not be cancelled on a large scale as long as traditional assets remain on the books. Nevertheless, it is expected for IT running costs to drastically decrease in the steady state.

The next chapter focuses on viable market entry considerations, touching both on products and production (sourcing/make-or-buy discussions).



# MARKET ENTRY STRATEGIES

**and call for  
action**



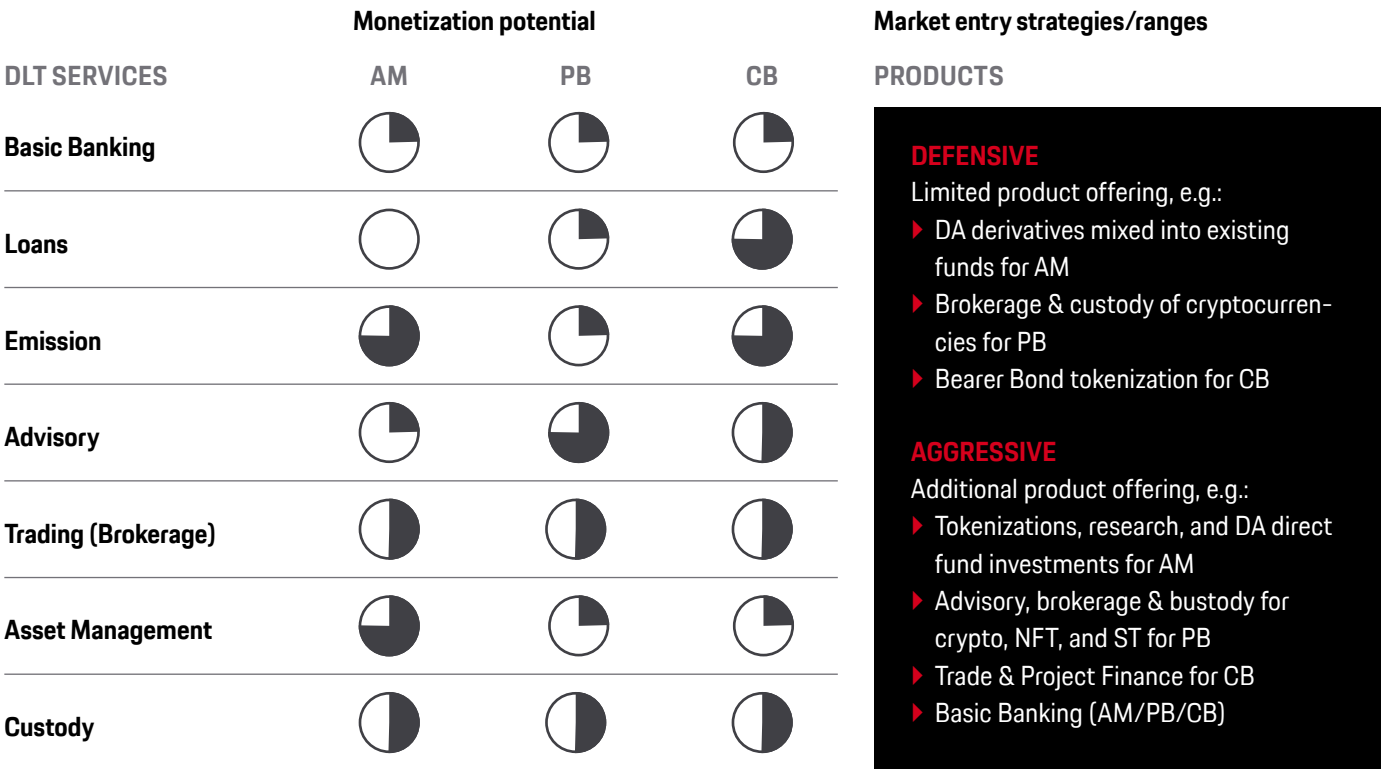
Financial institutions must act now and actively formulate entry strategies and evolve along the digital asset learning curve of front office use cases.

**Front office use cases**

Looking at possible market entries from a front office/product side within the German market landscape, it can be stated that the offering of some form of digital assets product is no longer "special" or "unique"<sup>23</sup> and the vast majority of DA service offerings consist of classic broker/custody products concerning payment tokens. To stand out of the pack on the front office/product side, some leading market participants offer their own tokenized funds, including white labeling (through a dedicated service KVG),<sup>24</sup> tokenized bond issuances, or issuing their own stable coin.<sup>25</sup>

On a general note, each market participant should individually assess the impact of digital assets on their business model and their clients. This includes the assessment of the monetization potential of the available use cases for their institution. Furthermore, each institution needs to thoroughly assess which use cases actually add value not only for the institution itself but also for its customers. Out of these considerations, banks can form a compelling market entry strategy that aims to formulate concrete goals regarding the product offering:

**Range of use cases shows multiple opportunities in a growing market segment**



© Porsche Consulting

Fig. 7. DA monetization potential.

As can be seen above, monetization potentials of the various use cases are closely dependent upon the business model. As an asset manager (AM) will rather profit from DA asset management than from debt security tokens, a private bank (PB) might focus rather on advisory services than on asset management services. Furthermore, corporate banks

(CB<-) will likely profit more from trade and project finance products than other market participants. Additionally, DLT also provides attractive use cases for treasury departments of non-financial clients, e.g., concerning bond emissions, hedging through derivatives or payments.

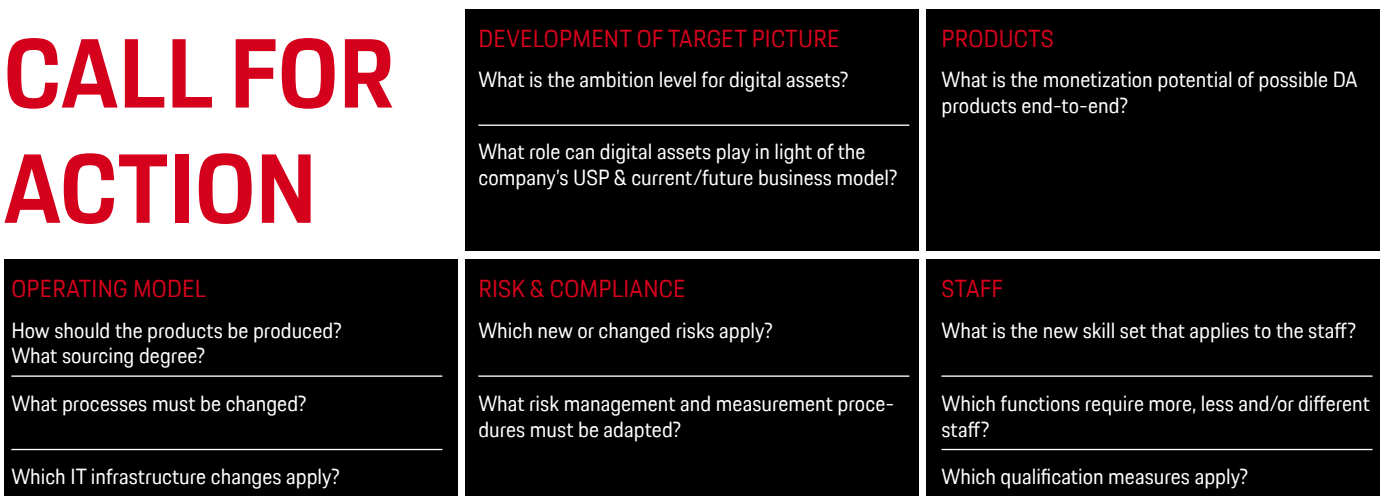
**Middle and back office use cases**

Just as banks can follow defensive or aggressive market entry strategies in terms of their product offerings, the same is true on the operations side. Strategies range from a high degree of sourcing (white labeling) through heavy SaaS usage to a lower degree of sourcing with more on-premise applications. Depending on the client and the business model behind it, higher sourcing could lead to easier and less costly adoption but could also lead to less control to customize and also lower margins, as the value-add is lower. The opposite can be true for on-premise models. Typically, more aggressive strategies follow a strategy with a higher degree of value-add and higher ambitions in terms of their existing and future IT architecture and therefore their E2E security value chain.

In this respect, this paper argues that strategic infrastructure investments that put financial institutions in the position to proactively pull traditional assets like stocks, bonds, or derivatives on the blockchain as soon as market and regulatory environment allows it is an entire new MBO use case on its own. This strategy will enable financial institutions to fully reap DLT's value proposition from the MBO side. As was shown in Chapter 3, significant cost savings and profitability increases are at stake. Proprietary platform developments such as SWIAT from asset manager giant DEKA<sup>26</sup> or D7 by Deutsche Börse AG<sup>27</sup> represent examples of such strategies.

To wrap up the discussion, this paper proposes five distinct areas where market participants should

evaluate required actions in order to address both the opportunities and challenges of digital assets:



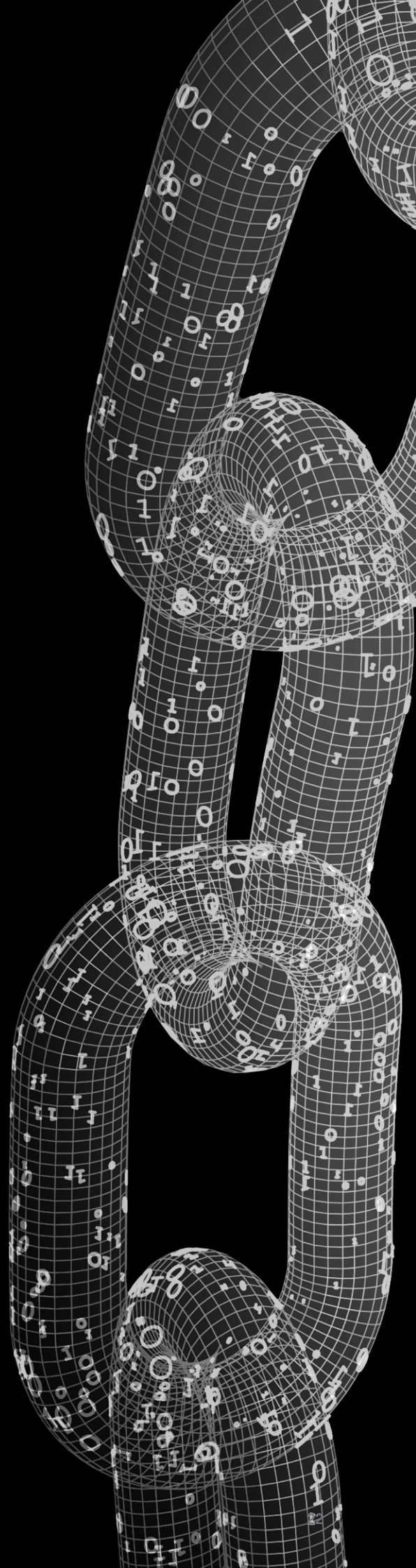
© Porsche Consulting

Fig. 8. Call for action.

---

Developing a holistic digital assets strategy, further development of the business model, and aligning the operating model along these specifications is key. Furthermore, effects on risk management and staff are very important to consider. It is also important to point out that many strategies evolve over time, with market participants growing ever “bolder” as they advance within the digital asset learning cycle.

As stated above, ignoring DLT is simply not an option. As with every new technology, there will be winners and losers in the market. In the context of this paper, “winning” and “losing” do not refer to the result of speculative trading in some form of cryptocurrency (Bitcoin, Ether, etc.) but to the application of the wider DL technology, with the discussion of the exciting new value propositions of security tokens at the heart of this paper. Winners are going to be defined as those that view digital assets not as a threat to their income statement but as a big and exciting new business opportunity.



# In Brief

- 01** The underlying DLT of cryptocurrencies holds a disruptive potential and offers promising new value propositions for participants in financial markets.
- 02** Simply ignoring DLT is not an option — companies must develop a holistic digital assets strategy, including the alignment of the operating model as well as possible effects on risk management.
- 03** The various front-, middle-, and back-office use cases provide insights on how to address both opportunities and challenges of digital assets.
- 04** It is crucial to develop a target picture, including the ambition level for digital assets as well as the role digital assets can possibly play regarding the company's business model.
- 05** Financial institutions must act now and actively formulate entry strategies and evolve along the digital asset learning curve in order to stay competitive.

---

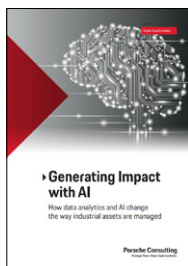
## Further reading



Strategic Change Management



Private Equity Value Creation



Generating Impact with AI



Zurück zur Höchstleistung



Rethinking Capital Allocation for the New Normal

---

## Authors



Matthias  
Tewes  
Senior Partner



Marius  
Bauer  
Senior Manager



Gabriel  
Holz  
Manager

▼  
Contact  
☎ + 49 152 3 911 0620  
✉ [marius.bauer@porsche-consulting.com](mailto:marius.bauer@porsche-consulting.com)

---

## Porsche Consulting

Porsche Consulting GmbH is a leading German strategy and management consultancy and employs 950 people worldwide. The company is a subsidiary of the sports car manufacturer Dr. Ing. h.c. F. Porsche AG, Stuttgart. Porsche Consulting has offices in Stuttgart, Hamburg, Munich, Berlin, Frankfurt am Main, Milan, Paris, São Paulo, Shanghai, Beijing, Atlanta, and Palo Alto. Following the principle of “Strategic vision. Smart implementation,” its consultants advise industry leaders on strategy, innovation, performance improvement, and sustainability. Porsche Consulting’s network of 12 offices worldwide serves clients in the mobility, industrial goods, life sciences, consumer goods, and financial services sector.

---

## Strategic Vision. Smart Implementation.

As a leading consultancy for putting strategies into practice, we have a clear mission: we generate competitive advantage on the basis of measurable results. We think strategically and act pragmatically. We always focus on people—out of principle. This is because success comes from working together with our clients and their employees. We can only reach our aim if we trigger enthusiasm for necessary changes in everyone involved.



---

# Appendix

## References

- (1) Money.com (2022): *Crypto losses*, <https://money.com/bitcoin-crypto-losses-2022/>
- (2) Decrypt (2021): *Bitcoin Is Now Among Top 10 Most Valuable Global Assets* - Decrypt
- (3) 8Marketcap.com (2022): *Crypto value*, <https://8marketcap.com/>
- (4) Outlookindia (2022): *Why Are Young Adults Investing In Bitcoin Over Stocks?*, <https://www.outlookindia.com/outlook-spotlight/why-are-young-adults-investing-in-bitcoin-over-stocks--news-51915>
- (5) Börsenzeitung (2023): *Siemens begibt erstmals Krypto Wertpapier*, <https://www.boersen-zeitung.de/banken-finanzen/siemens-begibt-erstmal-ein-krypto-wertpapier-785820ec-ac4f-11ed-96eb-7f4be6535413>
- (6) Christoph Hock, Ramin Ghafari (2023): *Crypto Asset Conference 2023, Panel Discussion*
- (7) *The network organization can be fully decentralized or can also contain central elements "gatekeeper" elements*
- (8) *So-called utility tokens, which represent certain forms of rights where the underlying asset does not represent a value in its own right, are not included due to the focus of the topic under consideration here*
- (9) MBJ (2021): *BMJ | Aktuelle Gesetzgebungsverfahren | Gesetz zur Einführung von elektronischen Wertpapieren*
- (10) *Various properties of money, such as store of value, medium of exchange, unit of account or currency are, for example, not or only very limited in Bitcoin or Ether*
- (11) Crypto Crunch (2021): *The Top Five Smart Contract Platforms (November 2021) | by Crypto Crunch | Coinmonks | Medium*
- (12) *Especially in combination with asset fractionization*
- (13) Finanzbusiness (2022): *Dekabank erwartet 20-Prozent-Anteil für Kryptowertpapiere binnen fünf Jahren*, <https://finanzbusiness.de/nachrichten/sparkassen/article13677372.ece>
- (14) Lexology (2022): *JPMorgan tokenizes collateral settlements*, <https://www.lexology.com/library/detail.aspx?g=810263b7-0ef8-4e72-a303-f6ae665a84dc>
- (15) Nasdaq (2021): *security-token-market-shows-signs-of-resurgence*, <https://www.nasdaq.com/articles/security-token-market-shows-signs-of-resurgence-2021-06-22>
- (16) Wepex (2022): *blockchain-und-digital-assets*, <https://www.wepex.de/fokusthemen/blockchain-und-digital-assets/>
- (17) Statista (2022): *Value of assets under management worldwide in selected years from 2003 to 2021*, <https://www.statista.com/statistics/323928/global-assets-under-management/>

---

(18) Both the FED and the ECB have started projects in this regard which are currently still in the early stages; see also: Atlantic Council (2022): Central Bank Digital Currency Tracker - Atlantic Council

(19) Official Journal of the European Union (2022): DLT Pilot Regime; <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32022R0858>

(20) EMIR technically does not fully apply yet since the current coverage of the DLT Pilot Regime does not cover OTC derivatives yet

(21) Risk.net(2020): Outsmarting counterparty risk with smart contracts - Risk.net

(22) Cashlink (2022): Tokenisierung Whitepaper, [https://cashlink.de/?gclid=EAlaIqobChMInt\\_zwofn9wIVDbTVCh0A6A\\_rEAAYASAAEgIXRfD\\_BwE](https://cashlink.de/?gclid=EAlaIqobChMInt_zwofn9wIVDbTVCh0A6A_rEAAYASAAEgIXRfD_BwE) (restricted access)

(23) Handelsblatt (2022= Erste Volksbanken und eine Sparkasse bieten Kryptohandel an, <https://www.handelsblatt.com/finanzen/banken-versicherungen/banken/kryptowaehrungen-erste-volksbanken-und-eine-sparkasse-bieten-kryptohandel-an/28321446.html>

(24) HAL (2022): Unsere Services im Bereich Digital Assets, <https://www.hal-privatbank.com/asset-servicing/digital-assets>

(25) Cision (2020): <https://www.prnewswire.com/de/pressemitteilungen/bitbond-und-bankhaus-von-der-heydt-geben-euro-stablecoin-eurb-auf-stellar-heraus-822086048.html>

(26) SWIAT (2022): <https://swiat.io/>

(27) Deutsche Börse (2022): D7, <https://deutsche-boerse.com/dbg-de/produkte-services/ps-technologie/ps-7-market-technology/ps-d7>

## **Porsche Consulting**

Stuttgart | Hamburg | Munich | Berlin | Frankfurt | Milan | Paris | São Paulo | Atlanta | Palo Alto | Shanghai | Beijing

[www.porsche-consulting.com](http://www.porsche-consulting.com)

© Porsche Consulting 2023