Practical Applications of Blockchain Technology in Austria

Presentation of a WKO Study

AUSTRIAPRO AK Blockchain

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ABC RESEARCH

Austrian Blockchain Center

WKO

WIRTSCHAFTSKAMMER ÖSTERREICH

Blockchain in Austria

Background

- Blockchain mostly associated with **cryptocurrencies** like Bitcoin
- But blockchain as technology can do so much more:
  It enables a **decentralized, tamper-proof data infrastructure**
  that fosters **trust** among all involved stakeholders
- Numerous **potential applications in companies**:
  - Finances, supply chain management, compliance, marketing, etc.
- Active **blockchain community** in Austria with many innovative companies
  - Big international players (Bybit, KuCoin, etc.) are setting up operations here
  - Chances for local companies as early adopters of blockchain technology

Overview

Study on real-world applications of blockchain technology

- **Project goal:**
  - Analyze practical applicability of blockchain-based solutions for companies based on current state of the art
  - Identify suitable application scenarios for different sectors and company sizes
  - Focus on Austria, but can be generalized to global market
- **Methodology:**
  - Combining desk research, interviews with industry experts, and an evaluation framework for identified use cases
- **Download full report (in German)**:
  - https://abc-research.at/de/einsatzmoeglichkeiten-der-blockchain-wko/

What does this report offer?

Focus on practicians

- Get a compact **technical overview on blockchain technology** together with associated benefits and challenges
- Identify **potential use cases** for your company
- Understand how blockchain can be applied in these use cases by following brief **technical descriptions** and **economic analyses**
- Get inspired by successful **real-world examples** from Austria and the world
- Get started with a first proof-of-concept by following **step-by-step guides**

Relevant Industry Challenges

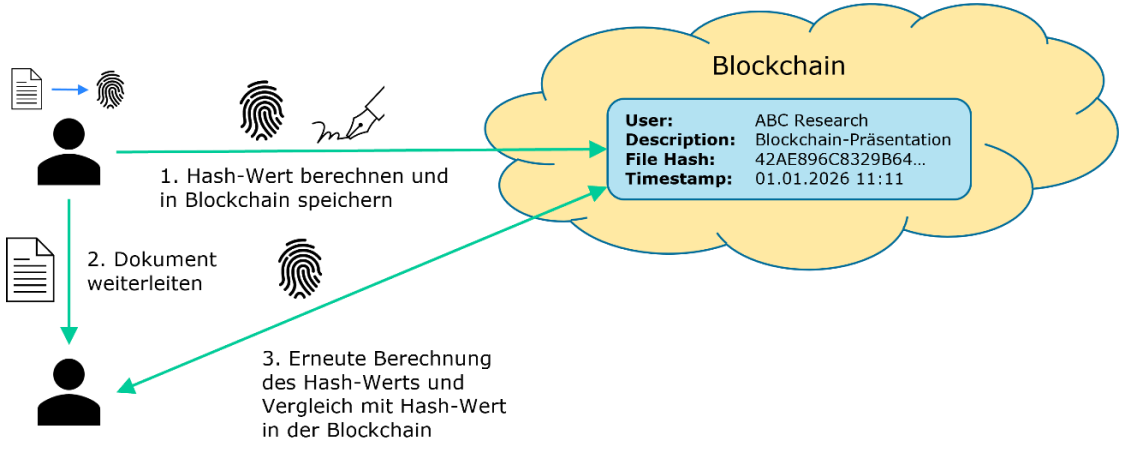
Basis for identification of blockchain-based solutions

Industry Challenge	Short Problem Description
Payment transactions	High transaction fees and inefficient payment processes
Access to financing	Limited access to financing, especially for SMEs and sole proprietors
Sustainability	Increasing regulatory requirements (ESG reporting etc.)
Supply chain management	Documentation and coordination along complex supply chains
Counterfeiting	Increasing distribution of counterfeit goods
Data use and exchange	Secure cross-company data sharing
Customer loyalty and CRM	High competitive pressure and dominant platform solutions make effective customer loyalty and personalized communication difficult

Overview Use Case Categories

Challenge	Blockchain enables	Blockchain-based solutions	Benefits of using blockchain technology	Relevance for sector						Relevance per company type		
				Finance	Trade	ICT	Logistics	Produc-tion	Tourism	KU (small)	MU (medium)	GU (big)
Data use and exchange	**Secure data sharing**	Notarization, data anchoring	Tamper protection, monetization	+	+	++	+	++	(-)	+	+	+
Supply chain management	**Traceability in supply chains**	Tracking & tracing systems	Transparency, tamper protection, automation, lifecycle information	(-)	++	+	+	++	(-)	(+)	+	++
Counterfeiting	**Product forgery protection**	Digital twin, certificate of authenticity	Tamper protection, lifecycle information, secure resale	(-)	+	(+)	(+)	++	(-)	+	+	++
Sustainability	**Verifiable sustainability**	Tracking systems with ESG focus, emission certificates	Transparency/compliance, verifiable ESG data, efficient emissions trading	(+)	+	(+)	++	++	+	(+)	+	++
Customer loyalty and CRM	**Customer incentivization**	Token-based customer loyalty programs	Customer motivation, information gain, community establishment	(+)	++	(+)	(+)	(-)	++	+	+	(+)
	Creating digital goods	Non-fungible tokens (NFTs)	Revenue generation, secure (re-)sale, community establishment	(+)	+	++	(+)	(+)	++	(+)	(+)	(+)
Access to financing	**Crowd-based financing**	Tokenization of assets	Arbitrary denomination, secure administration, transparency, flexible revenue distribution, community establishment	++	+	+	+	+	+	+	+	(+)
Payment transactions	**Alternative payment solutions**	Stablecoins, cryptocurrency-based payment services	Low fees, fast settlement, transparency, programmable money	++	++	++	+	+	+	+	+	+

Use Case 1: Secure Data Sharing



- Protection against tampering for documents and other data (integrity & authenticity)

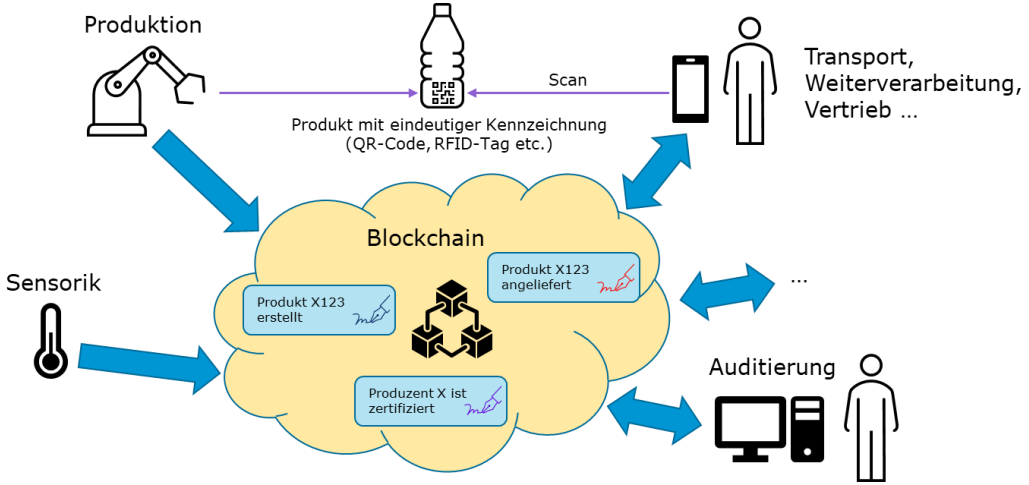
Practical Examples:

- AUSTRIAPRO & BCI Austria: Data certification (for WKO members)
- CargoX: Transfer of logistics documents (bills of lading etc.)
- Ocean Protocol: Decentralized data marketplaces

Applications for Austrian Economy:

- Compliance proofs for internal processes
- Protection of intellectual property (concept, program code, business plan, etc.)
- Secure B2B data exchange
- Tamper protection for critical data (reports, sensor data, mails, etc.)
- Optional monetization of data

Use Case 2: Traceability in Supply Chains



- Tracking of goods and processes in blockchain & automatization via smart contracts

Practical Examples:

- Circularise: Platform for Digital Product Passport (DPP)
- TextileGenesis: Traceability for textile industry
- S1Seven: Digital material passport for steel etc.

Applications for Austrian Economy:

- Compliance with documentation requirements (ESPR, CSDDD, etc.)
- Reliable information for all parties involved
- Simplification of audits and dispute resolution
- Increased efficiency through smart contracts (e.g., payment upon delivery)
- Foundation for innovative financing solutions ("trade finance")

Use Case 3: Product Forgery Protection

Source: https://www.stilami.com/stilami-identity/

- Certificate of authenticity and ownership in blockchain (verifiable via smartphone app)

Practical Examples:

- OwnerChip: Certificates linked with NFC sticker or smartcard
- TAGBASE: encrypted NFC stickers
- Aura Blockchain: Product passport for luxury goods

Applications for Austrian Economy:

- Tamper-proof certificate of authenticity for consumers
- Security for buying on secondhand market
- Market insights into product lifecycle
- Control of unauthorized sales on "gray market"
- Streamlined processing of warranty claims
- Opportunities for customer interaction

Use Case 4: Verifiable Sustainability

- Tracking of ESG-related activities on blockchain (emissions & offset measures)
- Automatized calculation of carbon footprint vis smart contracts
- Generation of emission certificates ("carbon credits") that can be traded via blockchain-based marketplace
- Blockchain solution ensures transparency and prevents double counting of certificates

Practical Examples:

- Toucan: Protocol for trade with emission certificates
- KlimaDAO: Decentralized investment platform for carbon credits
- Powerledger: Certificates for renewable energy

Applications for Austrian Economy:

- Reliable documentation of ESG criteria
- Verifiable ESG balance at product level
- Transparent compensation through verifiable measures (e.g., reforestation)
- Automated offsetting via smart contracts (e.g., for tourists)
- Monetization of eco-measures via sale of emission credits

Use Case 5: Customer Incentivization

- Rewarding specific actions (e.g., purchases, referrals, reviews, event participation) via digital tokens
- Blockchain ensures transparency, security, and tamper-proof assignment of tokens to customer accounts
- Smart contracts automate issuance, management, and redemption of tokens, reducing administrative overhead
- Tokens can be used for rewards, discounts, upgrades, etc. → gamification aspect to increase customer loyalty

Solution Providers:

- Enable3 (focus on e-commerce, gaming, mobile apps, and Web3)
- Loyyal (simple integration of partners)

Applications for Austrian Economy:

- Digitization of existing customer loyalty programs
- Measurability and automation of loyalty programs
- Flexible design enables shift towards community building
- Collaborations in regional contexts (e.g., tourism regions, neighborhoods, etc.)

Use Case 6: Creating Digital Goods (NFTs)

- Non-Fungible Tokens (NFTs) as digital assets on blockchain (media files with unique IDs)
- Can be created via smart contracts and transferred/sold to customers
- Secure ownership management and resale via blockchain
- Terms of use and additional features can be flexibly defined in smart contracts

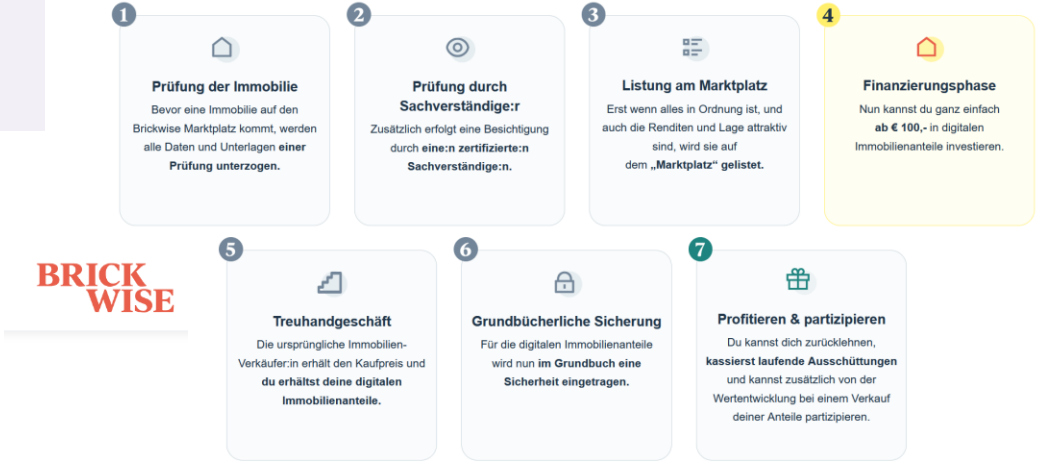
Practical Examples:

- Crypto Stamp (Post): Digital complement to physical stamp
- Belvedere Museum: Tokenization of Klimt's „The Kiss" in 10,000 NFTs
- OpenSea: Trading platform for NFTs

Applications for Austrian Economy:

- Sale of digital collectibles
- Gift NFTs for customers (marketing)
- NFTs as tickets and/or proof of attendance at events
- Integration with exclusive additional features like discounts or invitations to special events

Use Case 7: Crowd-based Financing



Source: https://www.brickwise.at/

- Example: Tokenization of real estate

Tokenization Solutions:

- Securitize (US)
- Tokenize.it (GER)
- SimplyTokenized (AUT)

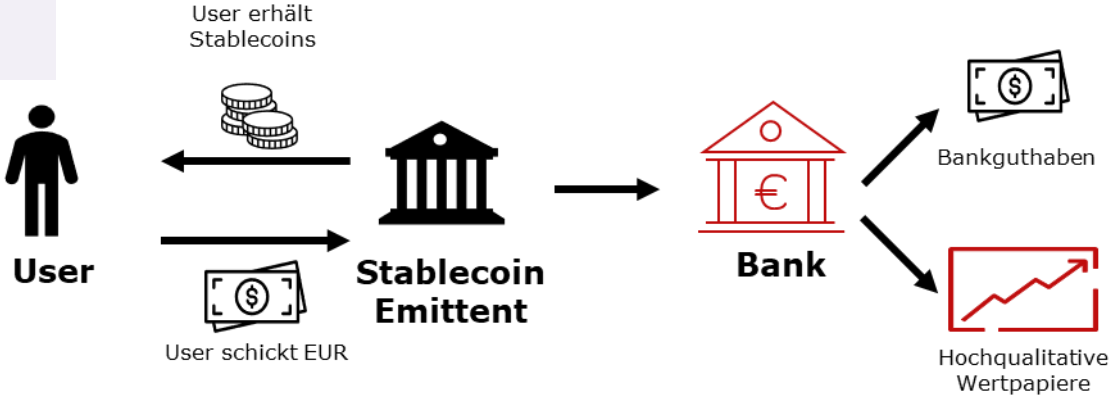
Advantages

- Tradability
- Automation potential

Applications for Austrian Economy:

- Financing of illiquid and capital-intensive assets
- Financing of projects with predictable cash flows
- Venture capital for growth companies

Use Case 8: Alternative Payment Solutions



Payment Infrastructure Solution Providers:

- TransFi
- Coinbase Commerce
- Bitpanda
- Talentir

- Stablecoins as alternatives to fiat payments

Applications for Austrian Economy:

- Efficient payment to suppliers in international context
- Microtransactions (e.g., in online creative economy)
- Integration of additional payment options in e-commerce (especially for expert-oriented niche providers)

Conclusion

Blockchain in Practice

Summary

- Blockchain ≠ Cryptocurrencies
- Enables secure decentralized solutions with tamper-proof data storage
- Builds trust among involved stakeholders
- Automation through smart contracts
- Wide range of use cases
  - for financial applications
  - in supply chain management
  - for customer loyalty
  - … (AI, KYC, DePIN, etc.)

How to get started

1. Analyze problem (Can blockchain help?)
2. Define concrete requirements
3. Seek relevant expertise (technical, legal, etc.)
4. Evaluate existing protocols & solutions
5. Fix technical architecture
6. Start Proof-of-Concept implementation (effort typically within few months)
7. Pilot test and evaluation

Thank you for your attention!

Contact us with your questions about this research

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Additional Links

Articles by WKO (in German)

- https://marie.wko.at/digitalisierung/blockchain-viele-unternehmen-zwischen-zwei-extremen.html
- https://marie.wko.at/digitalisierung/wo-blockchain-unternehmen-wirklich-hilft.html