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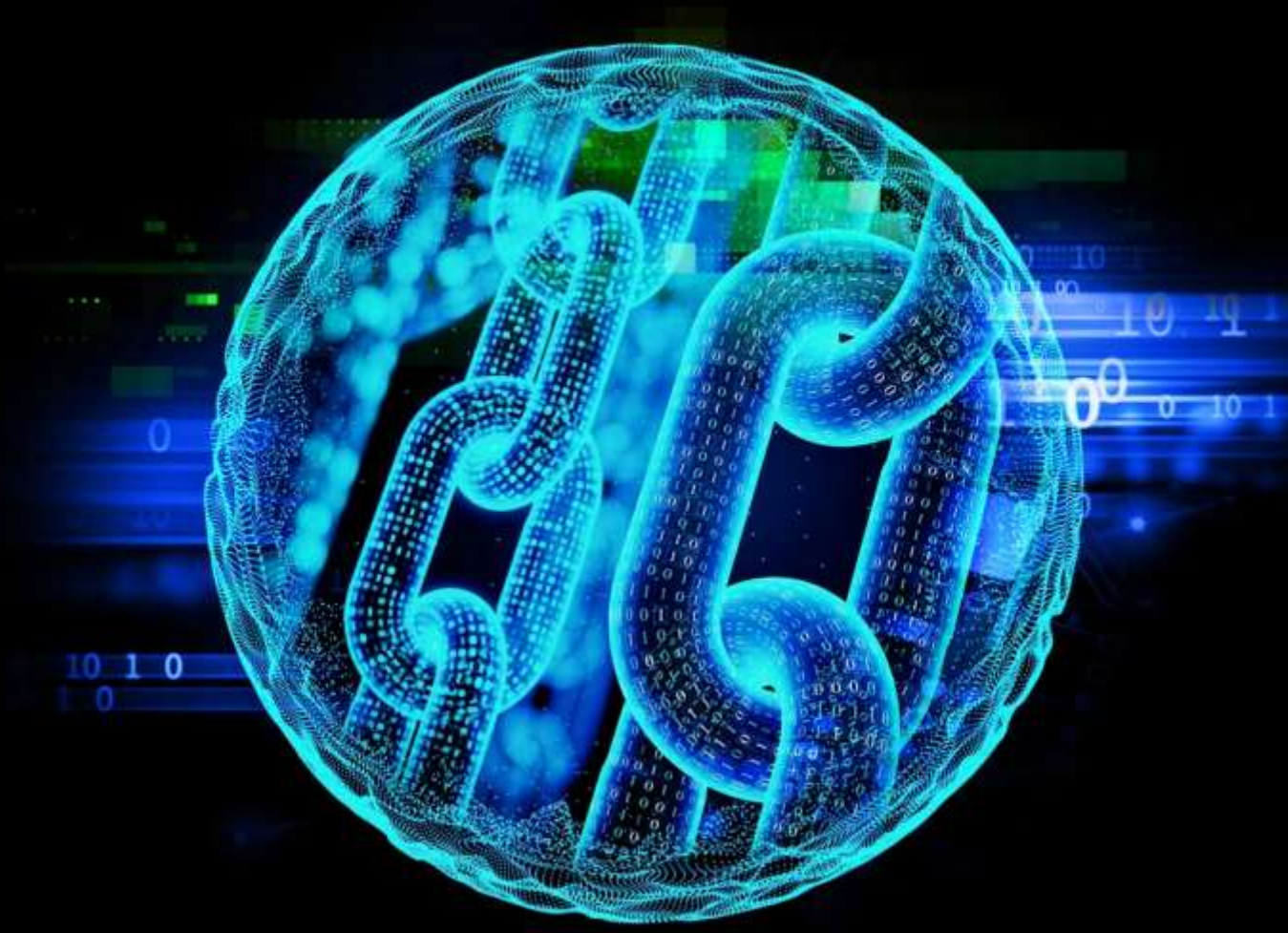
인천블록체인기술혁신지원센터 개소식

AI 시대,

블록체인과 디지털 Trust



이동기 파트너 | 딜로이트컨설팅 코리아

Blockchain & Digital Assets 그룹장

December 2024

MAKING AN IMPACT THAT MATTERS since 1845

Speaker's key profile

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0. Introduction

25 years later , could we say that Distributed Ledger Technology (DLT), is the backbone of Internet 3.0 ?

1990 - e-Cash

- The first commercial cryptocurrency was created by Digicash, founded by David Chaum

1997 - HashCash

- A cryptocurrency created by Adam Back to ensure anonymity and prevent double spending

1998 - B-Money & Bit gold

- B-Money: Cryptocurrency with anonymity and decentralized storage designed by Wei Dai
- Bit Gold: Cryptocurrency based on smart contracts designed by Nick Szabo

Milton Friedman
Nobel Prize in Economics - 1999

> *I think that the internet is going to be a major force... **The one thing that's missing but that will soon be developed is a reliable e-cash** – a method whereby on the Internet you can transfer funds from A to B without A knowing B or B knowing A.*

There were various attempts before the advent of Bitcoin, but... commercialization failed.

2009 – 1st generation blockchain: Bitcoin

- In 2008, he published a paper titled "A Peer-to-Peer Electronic Cash System" under the pseudonym Satoshi Nakamoto
- In 2009, after the emergence of Bitcoin, he began issuing, distributing, and trading digital assets

2015 – 2nd generation blockchain: Ethereum

- In 2013, Vitalik Buterin proposed a network capable of implementing Smart Contracts, and in 2015, Ethereum was born
- Use cases with a stronger application platform character emerged, and it expanded into various application service

2017 ~ Present - 3rd Generation Blockchain

- Optimizing blockchain data transmission and ensuring privacy, processing various types of data such as IoT, interoperability between blockchains, solving problems in industrial and real-life blockchain applications

* DLT, Distributed Ledger Technology, is an umbrella term for technologies that use decentralized databases to record & share data across multiple sites, organization, or geographic locations.

Contents

1. Blockchain Trends – Business and Technology
2. Risks and Incidents related to Blockchain and AI
3. Considerations for Digital Trust

1. Blockchain Trend – Business & Technology

1. Blockchain Trends – Business and Technology

1-0. Concept of Blockchain

탈중앙화, 비가역성 원장

Blockchain is a decentralized, immutable ledger that enables secure, transparent, and efficient transactions and asset tracking without intermediaries.

[A distributed ledger which allows digital assets to be transacted in real time, immutable manner]

Digital assets

something represented in a digital form that has an intrinsic or acquired value e.g., land, house, currency, vote, goods, certificates, identity, rewards etc.

Distributed ledger

(Shared, Peer to Peer, Disintermediation)
No single ownership, Multiple contributors

Immutability

Hashed data cannot be altered or forged

Cryptography (Public & Private Keys)	Verifiable record of every transaction

No Intermediary

- allowing any two parties to transact directly with each other without the need for a trusted third party.

Distributed Ledger

- The peer-to-peer distributed network records a public history of transactions

Immutability

- The Blockchain is linked to transaction record that comes before them which ensures record cannot be changed once they are entered.

Enhanced Security

- Enhancing data security through hashing
- Elimination of central authority ensures no one can change the characteristics of network for own benefit.

Transparency

- Every change on the blockchain is viewable which makes it more concrete

Applications

Digital Assets

Cryptocurrencies, stablecoins and tokenized assets such stocks and bonds

Non-Fungible Tokens

Digital representations of unique assets such as art, identity, and real estate

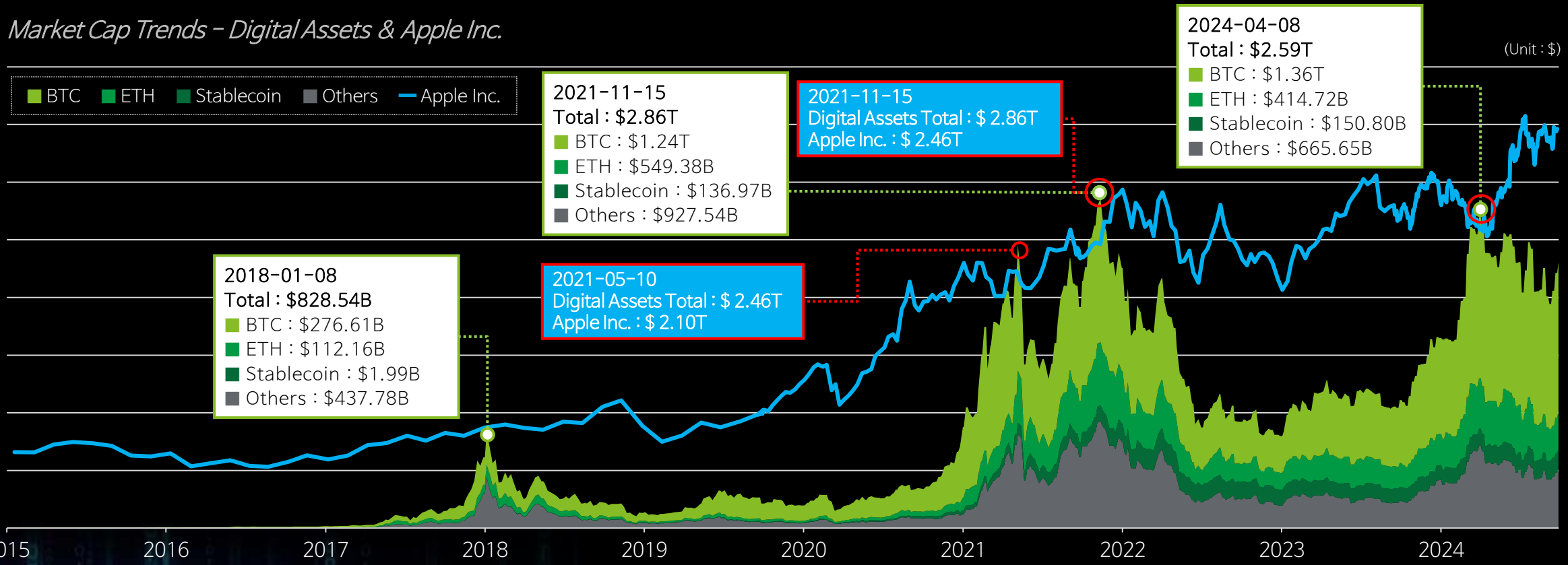
Smart Contracts

Applications that run on the blockchain and cannot be overridden
(i.e. “contracts as code”)

1-0. Digital Assets Market Capitalization Overview

Since the 2017 surge, the digital assets market has experienced dramatic volatility. Led by Bitcoin (BTC) and Ethereum (ETH), the market observed crashes, rebounds, and new peaks.

Market Cap Trends – Digital Assets & Apple Inc.

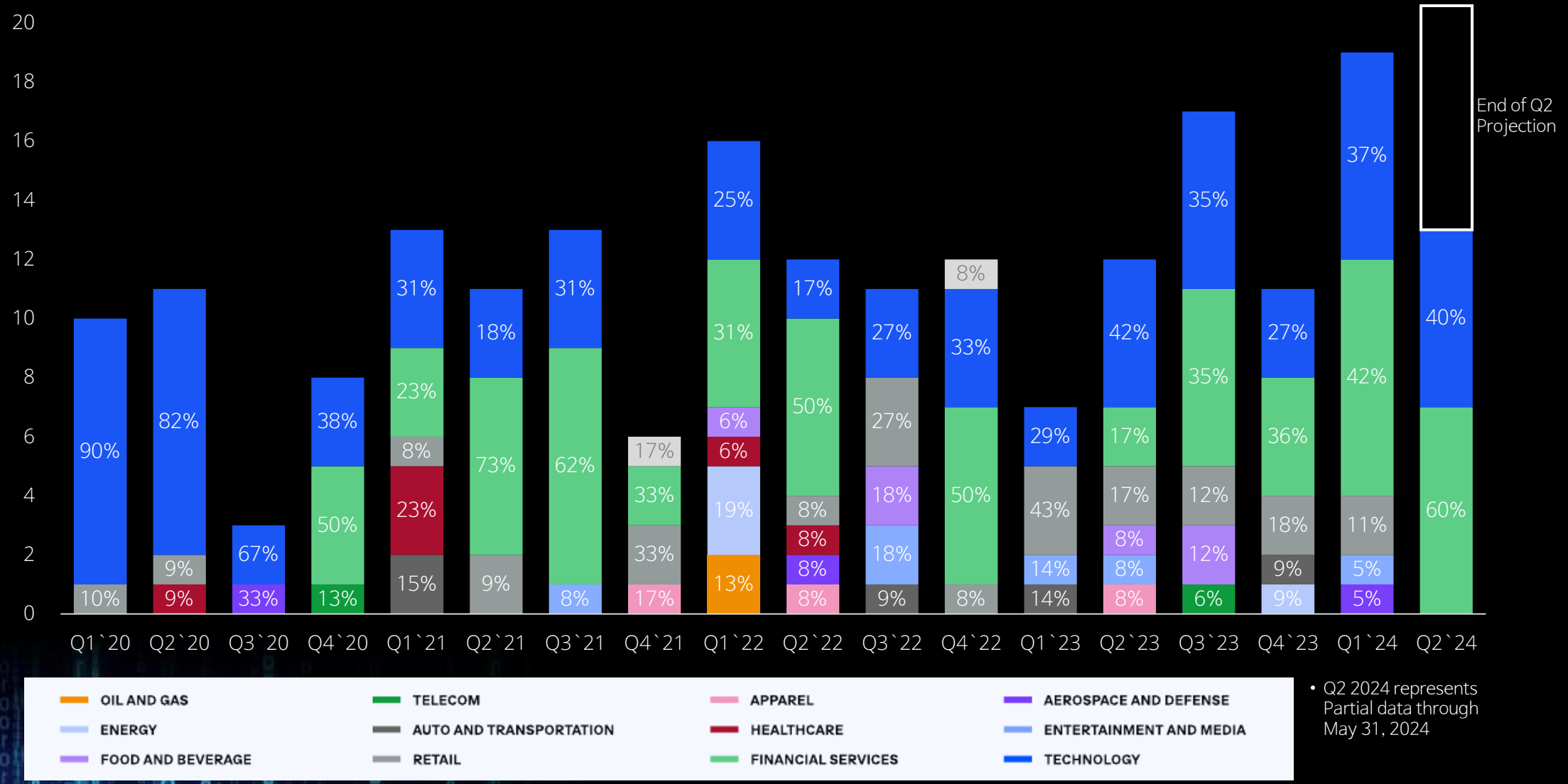


Date	2015-01-05	2016-01-04	2017-01-02	2018-01-01	2019-01-07	2020-01-06	2021-01-04	2022-01-03	2023-01-02	2024-01-01	2024-09-30
Total($)	4.54B	70.88B	18.32B	612.93B	138.25B	197.78B	876.59B	2.26T	798.56B	1.65T	2.31T

Source : CoinMarketCap, Finance Charts

1. Blockchain Trends – Business and Technology

1-1. Fortune 100 Companies : Initiatives by Industry



- Q2 2024 represents Partial data through May 31, 2024

Source : The Fortune 500 Moving Onchain, Coinbase, 2024 June

1. Blockchain Trends – Business and Technology

1-2. Types of Blockchain Business Model

Category 1 – BCM Clients holding digital assets through third-party custodians

Banking and Capital Markets client *은행 및 자본 시장*

- banks and insurance companies that were not involved in the crypto/digital assets space
- investing on the technology without the technological / technical capacity to hold those assets in-house
- relying on a third-party custodian

Category 2 – Investment Funds & Brokers proposing new digital assets investments

Investment funds and brokers *투자펀드 및 브로커*

- proposing to their clients a variety of new funds and investment options centered around exposure to digital assets and crypto

Category 3 – Enterprise, Corporate & Government

Enterprises, corporates and governments *일반기업 및 정부*

- investing in digital assets to seek asymmetric risk return or as a natural hedge against fluctuating fiat currencies
- part of a strategy to embrace modern and open technologies or as a complement to an operational strategy that includes accepting digital assets as payments

Category 4 – Custodians, Miners, Node Operators and Staking players

Custodian *관리자, 채굴자, 노드 운영자 및 스테이킹 플레이어*

- Playing a similar role to that of a bank, storing cryptos/coins, manages their liquidity and protect them from theft

Miners

- verifying and committing transactions to the blockchain public ledger in exchange for a cryptocurrency reward

Node Operator

- a company (or an individual) that broadcasts transactions, or provide other support to the network in exchange for a fee or incentive

Staking player

- Staking cryptocurrencies is a process that consists in committing digital assets to support a blockchain network and confirm transactions. A is a company that enables this process

Category 5 - Payment processors

Payment Processor *결제 처리업체*

- a company that provides a payment processing infrastructure that allows merchants and providers to accept payments across different cryptos while ensuring security through the payment process (essentially to allow transfer of cryptos from one crypto wallet to another)
- Compared to traditional bank card transfers, crypto payments have many significant advantages such as speed of transactions, moderate fees, anonymity and security

Category 6 – NFTs, Gaming, Metaverse Platforms, Marketplaces

NFT player *NFT, 게임, 메타버스 플랫폼, 마켓플레이스*

- a company (or an individual) that issues Non-Fungible Tokens (aka NFTs)

Gaming clients

- all players that build video games based on elements that use blockchain technology

Metaverse clients

- all players that develop a business in the metaverse. The metaverse can be defined as a simulated digital environment that uses blockchain, but also virtual reality and other technologies associated with social media concepts to create spaces for user interactions mimicking the real world (e.g. Decentraland or The Sandbox)

Marketplaces

- virtual economy platforms that allow artists, individuals and companies to showcase and list their NFTs

Category 7 - Crypto Exchanges

Crypto Exchange *가상자산 거래소*

- a platform that allows companies/individuals to trade cryptos or digital assets

Category 8 – Token & Protocol

Token/Protocol issuer *토큰 및 프로토콜*

- a company (or an individual) that builds a new blockchain protocol or offers new tokens to the public on their behalf or that of another company or individual

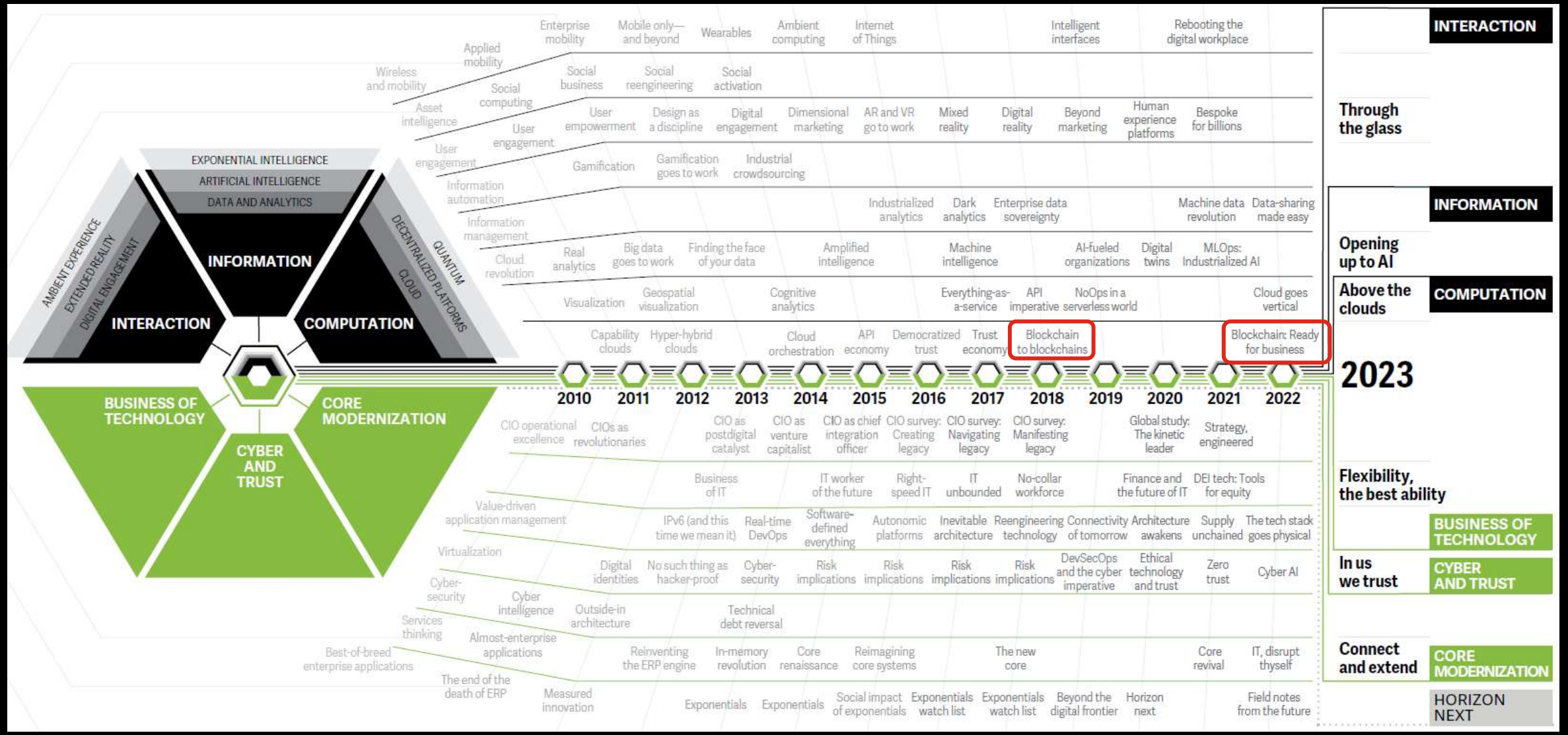
Category 9 – Crypto Borrowing & Lending issuers

Crypto Borrowing & Lending issuer *DeFi 등 크립토 대출*

- a company (or an individual) that lends cryptos/tokens to investors or crypto companies who want to use the digital assets for speculation, hedging or as working capital
- The lenders profit from the spread between the interest they pay on deposits and those charged on loans

1. Blockchain Trends – Business and Technology

1-3. Trending the trends : 14 years of research



Source : Deloitte Tech Trends 2023

2. Risks and Incidents related to Blockchain and AI

2. Risks and Incidents related to Blockchain and AI

2-1. Examples of Blockchain-Related Risks

No	Date	Incident	Detail	Impact (Prices at the time, USD K)
1	2024.05	The DMM Bitcoin Hack	[Key Mgmt.] Security vulnerabilities such as private key leaks	305,000
2	2023.11	The Poloniex Hack	[Key Mgmt.] Security vulnerabilities such as private key leaks	132,000
3	2023.03	The Euler Finance Hack	Flash Loan Attack exploiting security vulnerabilities in smart contracts	197,000
4	2022.11	The FTX bankruptcy	Opaque insider trading (subsidiary Alameda bad investments), lack of liquidity and debt	3,100,000
5	2022.10	The Binance Hack	Security vulnerabilities in Token Hub (hacked via vulnerability in BSC Token Hub, BNB Chain's cross-chain bridge)	570,000
6	2022.06	The Three Arrows Capital bankruptcy	[Operation] The Terra Luna Crash, over-leverage, poor risk management, etc.	330,000
7	2022.06	The Celsius Hack	Security vulnerabilities such as loss of private keys and hacking incidents, mismatch of maturity of assets and liabilities, and failure to manage liquidity risk, etc. (Bankruptcy in July 2022)	22,000
8	2022.05	The Terra/Luna Crash	Failure of the price stability mechanism of algorithmic stablecoins, an unsustainable model that relies on continuous capital injections from new users	40,000,000
9	2018.01	The Coincheck Hack	Security vulnerabilities, excessive use of Hot-Wallet	530,000
10	2017.04	The Yapizon Hack	Security vulnerability (Korea's first Bitcoin exchange hacking case)	5,000
11	2016.06	The DAO Hack	Security vulnerabilities in smart contracts, unclear legal responsibility (first case of Ethereum theft)	50,000
12	2011.06	The Mt. Gox Hack	Security vulnerabilities, internal processes and management system issues (bankruptcy in February 2014)	474,000

2. Risks and Incidents related to Blockchain and AI

2-2. Examples of AI-Related Risks

No	Date	Incident	Detail	Impact
1	2024.09	Meta AI, Unauthorized use of user personal information	Admitted to using public photos and texts from all adult Facebook and Instagram users in Australia over the past 20 years to train AI models	Exposing billions of users' data
2	2024.05	Majority of Fortune 500 companies warning AI risks	Of the Fortune 500, 281 companies (56.4%) warn of their AI risks in their financial reports (Risk Section) filed with the SEC to prevent litigation risk.	-
3	2024.04	Tesla, Autonomous Driving Accidents	A Tesla crashing a motorcycle in Seattle, USA	From 2018.01 to 2023.08, a total of 956 collisions occurred
4	2023.06	Amazon Alexa, Privacy violations	Recorded files and location information were stored indefinitely through the AI assistant Alexa, and personal information leakage accidents such as mistransmission to others occurred.	$25 million in damages
5	2023.03	Samsung Electronics, Data leakages	Confidential data leakages (facility measurement/yield data) through ChatGPT	Unestimated (technology leaks possible)
6	2023.03	ChatGPT, Data leakages	Billing information and conversation history leaked due to Redis client bugs	1.2% ChatGPT Plus user data leaked
7	2018.10	Boeing, 737 MAX crash	Crash accident due to malfunction of the Piloting Characteristics Improvement System* as part of AI ** MCAS: Maneuvering Characteristics Augmentation System*	From 2018.10 to 2019.03, total 346 deaths due to 2 crashes
8	2012.08	Knight Capital, AI Trading Incidents	Acquired by a competitor after a large transaction error during an AI-powered trading system resulted in a loss of $440 million within a few hours.	$440 million

Opportunities and Challenges of Blockchain and AI Integration

- Blockchain offers a secure system, while AI detects unusual behavior, ensuring robust security and data privacy.
- AI-powered smart contracts and DAOs enable automated transactions, reducing intermediaries and improving efficiency.
- AI analyzes blockchain-stored data, offering valuable insights for businesses and institutions for improved decision-making.
- Blockchain's transparency and AI's decision-making create a system that enhances both efficiency and trust among participants.

Enhanced Data Security and Privacy
데이터 보안 및 개인정보 보호 강화

Improved Efficiency and automation
효율성 및 자동화 개선

Advanced Analytics and Decision-Making
고급 분석 및 의사 결정

Increased Trust and Transparency
신뢰와 투명성 제고

Opportunities

Challenges

Complexity and Technical Expertise Required
복잡성, 기술 전문성 요구

High Energy Consumption
과도한 에너지 소비

Regulatory and Ethical Challenges
규제 및 윤리적 과제

Data Quality and Standardization Issues
데이터 품질 및 표준화 이슈

- Combining blockchain and AI is highly complex and requires significant technical knowledge, which can limit adoption by businesses.
- Both technologies, especially blockchain mining and AI model training, consume large amounts of energy, raising environmental and cost concerns.
- Integration brings challenges like data privacy, accountability, and ethical decision-making, causing compliance difficulties.
- AI requires high-quality, standardized data, which is difficult to achieve with blockchain's decentralized nature, limiting AI's full potential.

3. Considerations for Digital Trust

3. Considerations for Digital Trust

3-1. Adoption of Blockchain: CBDC

CBDC is a global trend, with 158 projects active across 105 countries. BIS's Project Agorá aims to improve cross-border payments through tokenization, simplifying AML checks, and building trust.

CBDC -105개국(158개 프로젝트) 진행 중 글로벌 트렌드. BIS의 Project Agorá는 토큰화, AML 검사 간소화, 신뢰 구축을 통해 국경 간 지불 개선 목표

Current status of the CBDC project ('24.11.)

Step	Number of projects	Country
Research	102	Ethiopia, Kyrgyzstan, Armenia, etc.
Proof of concept	28	Japan, Thailand, Hong Kong, Norway, USA, Australia, etc.
Pilot	28	Korea, China, Russia, Switzerland, etc.
Launched	4	Jamaica, Zimbabwe, Bahamas, Nigeria
Cancelled	7	Ecuador, Singapore

Project Agora (The Cross-border CBDC project led by the Bank for International Settlements (BIS))

Limitations of existing cross-border payment systems and the background of the project

- Legal regulations and technical compliance requirements differ, and issues such as varying time zones overlap, leading to higher costs and slower processing speeds.
- When intermediary institutions are added for tax evasion and anti-money laundering prevention, the same procedures are often repeated multiple times, creating limitations.

Project goals

- Improving the speed and efficiency of cross-border payments, and reducing costs through the tokenization of commercial bank deposits and central bank CBDCs, thereby strengthening the integrity of the financial system.
- The tokenization of cross-border payments is being promoted through a unified infrastructure between central banks and commercial banks from seven countries.

Key Participants and roles

BIS	Project coordination and management	IFF	Participation coordination and cooperation of private financial institutions
Central Bank	Issuance and management of tokenized digital assets of each country's currency * 5 reserve currency countries (New York Federal Reserve, Bank of England, Bank of France, Bank of Japan, Swiss National Bank), Bank of Korea, Bank of Mexico		
Private financial institutions	Providing technical expertise and contributing to platform design, testing various cases		

[BIS, Existing cross-border payments and cross-border payments of the Agora Project]

AS-IS

TO-BE

3. Considerations for Digital Trust

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AS-IS

TO-BE

3. Considerations for Digital Trust

3-2. Adoption of Blockchain: EBSI

EBSI (European Blockchain Services Infrastructure) leverages decentralized technology to accelerate cross-border public services, enhancing trust, and secure information sharing and verification processes within a resilient and scalable system.

EBSI - 탈중앙화 기술 활용, 국경 간 공공 서비스 가속화 및 신뢰 강화, 탄력적/확장 가능한 시스템 내 정보 공유 및 검증 프로세스 보호

EBSI (European Blockchain Service Infrastructure)

- EC-Supported, Member State-Managed Public Infrastructure
- Operated by Verifiable Credentials, Digital Wallets, and Blockchain

Vision Accelerating Cross-Border Services with Decentralized Technology

Goal
① Enhancing Trust
② Sharing Corporate and Public Information
③ Simplifying Verification Processes

Feasibility of Information Repositories

- Supports a Low-Energy, Resilient, and Tamper-Proof Trust Model via Blockchain Proof of Authority

Distributed Static Single File	Distributed DB	Blockchain Technology
▪ Integrity/Authenticity ▪ Proof of Existence	▪ Integrity/Authenticity ▪ Proof of Existence ▪ Distribution and Replication ▪ Resilience/High Performance	▪ Integrity/Authenticity ▪ Proof of Existence ▪ Distribution and Replication ▪ Resilience/High Performance ▪ Accountability
Current Implementation of Some Trusted Lists	Hybrid Approach	EBSI Distributed Network

EBSI Trust Model

- EBSI can Model All Trust Models Using Three Role Models

TAO (Trusted Accreditation Organization)	• Plays a Role in Authorizing Trusted Issuers to Issue Specific Types of Verifiable Credentials in Specific Sectors/Domains of a Region
EBSI	• Acts as a Decentralized Public Registry of Authorized Entities, Including a List of Trusted Corporations Certified by TAO, for Issuing Specific Types of Credentials
Trusted Issuers	• Entities Authorized to Issue Specific Types of Credentials

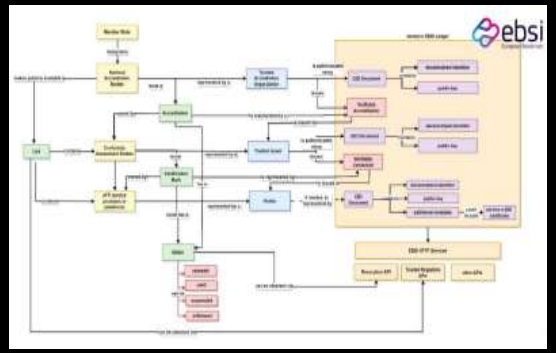
3 steps to create an interoperable trust model

Step0 Aligning EBSI's Roles and Artifacts with Authorized Trust Model Relationships

Step1 Identifying Roles in the Trust Relationship Model within the Ecosystem

Step2 Using Verifiable Credentials to Represent Information Transparently

Step3 Integrating the Ecosystem with EBSI Services (Implementing an Interoperable Trust Model)



3. Considerations for Digital Trust

3-3. Adoption of Blockchain: DPP

The DPP (Digital Product Passport) boosts transparency and trust by securely recording product lifecycle data with blockchain. Its demand is rising due to stricter EU Eco-Design Regulations.

DPP- 제품 수명 주기 데이터를 안전하게 기록, 투명성과 신뢰 제고. EU 에코디자인 규정 발효에 따라 DPP의무화, 중요성 부각

EU Eco-Design Regulations for Sustainable Products (July 18, 2024)]

- The Eco-Design Regulations require digital collection and sharing of lifecycle information—production, distribution, sales, usage, and recycling—for all products in the EU.
- The DPP was first mentioned in the 2022 Eco-Design Regulation Proposal (ESPR).
- Starting July 18, 2024, the "Eco-Design Regulations for Sustainable Products" will strengthen requirements in four areas:
  ① Expanded Scope: All physical items included.
  ② Enhanced Requirements: Stricter sustainability criteria (durability, reliability, reusability).
  ③ Obligations for Unsold Products: Reporting for unsold product disposal; banning discarding unsold clothing and footwear.
  ④ Digital Product Passport: Improved transparency of lifecycle information.

DPP (Digital Product Passport) overview

- Consumers can transparently access information about a product's materials, origin, recyclability, repairability, carbon footprint, and recycled content through a digital passport.

Use case of DPP in Korea

Public	• The Ministry of SMEs and Startups / Smart Manufacturing Innovation Promotion Team plans to launch a cloud solution called VCP-X to support domestic companies. • This government-owned subscription platform will enable companies to issue DPP reports, ESG reports, CBAM certificates, and digital LCA reports. A pilot project is ongoing (March 2024).
Private	• SFI (Sustainable Fashion Initiative) / Fashion-Proof announced the beta launch of Korea's first textile and fashion-specific DPP platform in response to the EU DPP (2024). • The platform aims to promote a circular economy by providing essential information in six areas—product, supply chain, brand, sustainability, circular economy, and unique identification—to help consumers make informed purchasing decisions.

3. Considerations for Digital Trust

3-4. Adoption of Blockchain: Net Zero and ESG

Blockchain enhances trust in voluntary carbon markets by providing transparent, immutable verification of carbon credits, reducing the risk of greenwashing.

탄소배출권에 대한 투명하고 비가역성 검증을 제공, 자발적 탄소 시장에 대한 신뢰성 확보 및 그린워싱 리스크 감소

- Emissions Trading Scheme (ETS)
  First introduced globally in 2005
- Carbon Border Adjustment Mechanism (CBAM)
  Requiring certificate purchases starting in 2026.

- Carbon Tax implemented only in Hawaii
- ETS Operated by state governments, not the federal government.
- CBAM Under consideration for application

- ETS The Korea Exchange designated as the emissions trading exchange, trading three types: KAU, KCU, KOC.

- Carbon Tax The "Global Warming Solutions Tax," a type of carbon tax, was introduced in 2012.
- ETS Currently implemented in some regions.

- ETS Piloted in eight provinces since 2013; nationwide China National ETS implemented in 2021.

EU, tightens Regulations on Voluntary Carbon Credits

- On November 21, 2023, the European Parliament approved the Carbon Removal Certification Framework (CRCF) to regulate carbon removal quantification, monitoring, and verification.
- The framework requires 1) compliance with international standards, 2) transparency, 3) public disclosure, and 4) an EU registry to prevent greenwashing and double counting.
- In January 2022, the EU adopted this framework to ensure reliable carbon removal certification, which was officially passed by the Parliament in November 2023.

Issues in the Voluntary Carbon Market

Carbon credits issued by private entities carry the potential risk of losing value.

- The core issue in the current voluntary carbon credit market is the difficulty in verifying whether the credits were issued based on real carbon reduction outcomes.
- Since the voluntary carbon market is self-formed, anyone can freely participate, developing platforms, methodologies, and projects.
- As a result, the market has evolved with flexible methodologies and registration processes, but the lack of standardized regulations and procedures leads to unverified carbon credit value.
- In extreme cases, some carbon credits purchased by companies were found to be worthless, forcing firms and investors to write off their value to zero.

The Guardian

Revealed: more than 90% of rainforest carbon offsets by biggest certifier are worthless, analysis shows

Investigation into Verra carbon standard finds most are 'phantom credits' and may worsen global heating

- **'Nowhere else to go': Alto Mayo, Peru, at centre of conservation row**
- **Greenwashing or a net zero necessity? Scientists on carbon offsetting**
- **Carbon offsets flawed but we are in a climate emergency**

Blockchain-Based Solutions

The Potential of Blockchain

Blockchain is often seen as a key solution to major issues in the carbon market due to its unique characteristics, and efforts to apply it are on the rise.

Project Development and Verification

- Blockchain ensures the permanent storage and immutability of all project documents, verification reports, and environmental impact assessments.
- This guarantees project data reliability from the start, while improving integrity and transparency for investors, regulators, and the public.

Carbon Credit Issuance

- Blockchain prevents tampering with issued carbon credits, ensuring each credit reflects actual emissions reductions.
- Tokenization through smart contracts streamlines the issuance process, reducing the need for intermediaries and cutting transaction costs.

Monitoring, Reporting, and Verification (MRV)

- Blockchain securely stores MRV data, ensuring accurate and immutable records of emissions and reductions.
- Its decentralized nature enables collaboration and transparency, allowing stakeholders to provide and verify data efficiently.

3. Considerations for Digital Trust

3-5. Risk Management : Blockchain-based Trust use cases

Key use cases of blockchain for restoring trust include digital credentials and identities, data-sharing with third parties, provenance and traceability, and micropayments and transactions.

신뢰 회복을 위한 블록체인의 주요 사용 사례 - 디지털 자격 증명 및 신원, 외부제3자와의 데이터 공유, 출처 및 추적성, 소액 결제 및 거래 등

Digital identities

Proof of identification stored in encrypted digital wallets could lead to more secure transactions

External data-sharing

Organizations can break down data siloes to collaborate with external partners, unknown or untrusted parties, and competitors, without compromising privacy, confidentiality, security, or intellectual property

Micropayments and transactions

New techniques can help streamline the microtransaction intermediation process and reduce fees

Digital credentials

People can securely store, share, and control their own tamper-proof credentials (personal health, education, voting records, etc.) in an encrypted digital wallet

Provenance and traceability

Businesses can provide tracking and tracing information about product provenance to ensure product and supply chain transparency

Source : Deloitte Tech Trends 2023

3. Considerations for Digital Trust

3-5. Risk Management : Deloitte Digital Asset Risk Domain

Level 1 | Risk Domains

- **L1 Operational** (운영)
- **L1 Compliance & Regulatory** (컴플라이언스 & 규제)
- **L1 Strategic & Reputational** (전략 & 평판)
- **L1 Financial** (재무)
- **L1 Tax & Accounting** (세무 & 회계)

Level 2 | Sub-Risk Domains

L2 Blockchain (블록체인)
- Soft and hard forks
- Multi-party computation
- Whitelisted address mgmt
- Second-layer protocols
- Culling of transactional history

L2 Cybersecurity (사이버보안)
- Backup and availability of Private keys
- Private key mgmt
- Staking and risk of loss
- Ransomware

L2 Technology (기술 리스크)
- Custody of digital assets
- Wallet mgmt/segregated acct.
- Suspensions and outages
- Fraud and theft
- Customer support
- Business continuity mgmt
- Data privacy and confidentiality
- Segregation of duties
- Data management

L2 Compliance (컴플라이언스)
- Compliance with legislative rules/regulations
- Regulatory reporting
- KYC/client acceptance

L2 Financial Crime (금융 범죄)
- AML/CTF considerations
- Sanctions compliance and financial crime
- Transaction monitoring
- Client on/off-ramping

L2 Business Strategy (비즈니스 전략 리스크)
- Business model assessment
- Cost of build and operations
- Contractual arrangement
- IP approach: build vs. buy

L2 Reputational (평판)
- Adverse media coverage
- Vulnerability mgmt

L2 Conduct (수행)
- Customer protection and complaints
- Market conduct and manipulation

L2 Markets (시장)
- Wrong-way risk
- Lack of adequate FMI infrastructure

L2 Capital & Liquidity (자본 & 유동성)
- Modeling risk
- Volatility and intraday risks
- Collateral and margin risks
- Treasury & cash mgmt

L2 Tax (세무)
- Accounting and tax treatment
- Tax implications
- Information reporting

L2 Accounting (회계)
- Lack of RWA source data
- Coin concentration risk
- Inappropriate capital reserves
- Reconciliation of digital assets vs. blockchain

In collaboration with our clients, we will look to leverage a firm's existing risk taxonomy to perform a digital asset risk assessment

Level 3 | Risks

3. Considerations for Digital Trust

3-5. Risk Management : Governance and Enterprise Risk Management

Comprehensive, enterprise-wide risk management is essential when implementing blockchain, as its impact spans the entire organization and permeates all operational processes.

블록체인 도입은 조직 전체, 운영 프로세스 전반에 영향을 미치기 때문에 전사적/종합적 리스크 관리가 필수적

Data & Technology

Processes and controls to ensure data quality

- Support for processes and controls to ensure the reliability of fundamental information processed on the blockchain.
- Data interface between legacy IT systems and blockchain systems.

Governance

Sound governance surrounding blockchain implementation projects

- Decision-making regarding the selection of blockchain mainnet/solutions.
- Strict governance structure and PMO organization throughout the implementation of blockchain projects.

Compliance

Adhering to new blockchain-related regulations (AML, KYC, etc.)

- Internal controls for customer identification and suspicious transaction monitoring.
- Money laundering risk assessment before listing new virtual assets and verification procedures for related party transactions.

Financial Reporting

Ensuring on/off-chain data reliability & reconciliation with financial reporting systems

- New solutions for effective financial reporting for participants in the blockchain ecosystem.
- Internal controls for reconciliation between the blockchain distributed ledger and financial reporting systems to ensure data integrity and accuracy.

"Successful implementation requires close collaboration across multiple key departments, including business technology, operations, legal, and finance leadership.

Additionally, securing and retaining blockchain experts with specialized knowledge in encryption, programming, and networking is crucial to ensuring the initiative's success.."

"성공적인 구현을 위해 비즈니스 기술, 운영, 법무, 재무 리더십을 포함한 전사적 협력체계 요구.

암호화, 프로그래밍 및 네트워킹 전문 지식을 갖춘 블록체인 전문가를 확보/유지하는 것은 이니셔티브의 성공을 보장하는 데 매우 중요."

Deloitte.