

Universal Digital Evolution Charter (UDEC)

Proposal for a Reliable Legal Framework for Evolving Technologies such as DLT, AI, and Quantum Computing

Prof. Dr. Andreas Furrer / Prof. Dr. Wulf Kaal [/ Prof. Dr. Michael Sung]

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1. Overview

1.1 Introduction

The Universal Digital Evolution Charter(UDEC) represents a proactive approach to providing developers and users of the rapidly evolving three most important Web3-technologies, namely DLT, AI, and Quantum Computing, with critical legal roadmaps to navigate the fundamentally changing business landscape. The purpose of the UDEC is to outline the minimum legal requirements that Web3-projects (and/or the Metaverses) must meet to enable users for their services to conduct legally valid and compliant digital transactions. This is a crucial prerequisite to assess the operational risk of any Web3-business.

Since Web3 merges the legacy/physical world with the digital world in such a way that a person experiences seamless and interchangeable rules regardless of where he/she transacts. By providing such a structured Web3 legal framework, UDEC aims to ensure the widest possible extension of existing national (including international) laws for the legacy/physical world to digital transactions in Web3. This leads to fair outcomes, mitigate risks, and instills confidence in legal-based transactions within Web3. This initiative sets the stage for future technological advancements, where UDEC will provide the core requirements for a UDEC as a legal framework that ensures that applicable laws provide the legal certainty essential for building new markets using the benefits in these emerging technologies.

Since UDEC is designed to merge the physical and digital worlds, it establishes seamless and interchangeable transaction rules. By outlining minimum legal requirements, UDEC enables projects operating in these cutting-edge domains to conduct legally valid and compliant digital transactions. This comprehensive UDEC legal framework addresses essential elements and regulatory challenges, facilitating the integration of evolving technologies and fostering a stable environment for innovation and growth. UDEC will contain the legal frameworks that emerge from the various legal systems, ensuring that Web3 projects have the greatest possible security that their transactions are legally valid, compliant and enforceable, as users can rely on, and trust established and familiar rules of national laws based on known traditional rules and concepts.

1.2 Core Objectives and Elements

The primary objective is to provide a UDEC as a legal framework that extends existing national and international laws to digital and AI / Quantum-focused transactions, reducing barriers to entry and ensuring legal certainty to build global markets in evolving technologies.

- 1. Relationship to national Laws:** Determine the rules governing jurisdiction and the applicable law on digital transactions within the scope of the UDEC Charter
- 2. Digital Identity:** Establishing the framework for secure and verifiable digital identifiers to ensure trust and authenticity in digital interactions, enabling the associated identities to become the bearers of rights and obligations.
- 3. Digital Ownership:** Defining and protecting the requirements for digital property rights to establish and maintain integrity, security, and transferability of digital assets, which enables to commercialize the value of data and information.
- 4. Contract Settlement:** Ensuring that all contractual obligations are met within a single transaction, preserving the integrity of the transaction, ensuring legal and compliant contracts, and enabling their enforcement in both the physical and digital worlds.
- 5. Privacy and Data Protection:** Establishing stringent privacy and data protection standards to safeguard personal and sensitive information.
- 6. Compliance:** Defining the requirements to comply with mandatory rules, such as financial market, KYC, corporate or export compliance regulations, ensuring that all activities within the ecosystem are legally sound.
- 7. Dispute Resolution:** Providing the legal requirements to establish mechanisms for alternative dispute resolution (ADR), arbitration, and national jurisdiction to handle conflicts efficiently and fairly.
- 8. DLT, AI, and Quantum Technology Integration:** Establishing guidelines for the use of these technologies to establish above-listed core elements within the applicable legal frameworks.
- 9. Regulatory Innovation:** The UDEC rules can provide national and international legislators with templates for creating dynamic and evolutionary technology-driven regulatory mechanisms that dynamically adapt to technological advancements, ensuring continuous compliance and governance.

By incorporating these core elements, UDEC aims to provide a comprehensive legal framework that supports the seamless integration of digital and physical worlds, fostering the development of new markets and the evolution of law in Web3, AI, and quantum computing systems. These elements aim to integrate legacy national laws seamlessly into the digital realm, ensuring that users can exercise their rights and meet mandatory legal requirements through national courts, arbitral tribunals, or competent authorities.

1.3 Private Academic Workforce

UDEC is a private academic initiative that seeks to bring together leading academics and practitioners from around the world. This initiative aims to represent major B2B

jurisdictions, including the USA, China, Japan, the EU (with key jurisdictions such as Germany and France), Switzerland, Singapore, Hong Kong, and the UAE. UDEC shall serve as a reference point for activities related to Web3, in particular, based on DLT, AI, and quantum computing. It will integrate the latest developments in law at international (such as the UNIDROIT Principles on Digital Assets and Private Law or the UNCITRAL Model Law on Electronic Transferable Records) and on national levels.

Based on a draft of a selected initial group of experts, we aim to further collaboratively develop UDEC as a guideline for enterprises, app developers, international organizations, and national legislators. The founders will hand over the UDEC to a Swiss association, which will be responsible for this further development of the UDEC. This allows developing the first drafts much faster and focusing on the core issues.

Integrating UDEC into national legislation will enable the enforcement of jurisdiction-specific policies, such as consumer protection, insured persons' rights, and investor protection, eliminating the need for further policy discussions within the group.

1.4 Codex and Commentary

UDEC is written as a codex with articles and chapters. All articles are supplemented by an explanatory commentary, which will also have an introductory chapter explaining the purpose, target audience, and how this project will be developed.

The initial drafting committee will submit the draft code and commentary to a Swiss association. They will then be published it for further improvement by designated experts (see more information on the planned procedure in Chapter 6).

2. Discussion

2.1 The Case for UDEC

- **Legal Certainty for Business Risk Assessment:** Legal certainty and compliance are crucial for the large-scale deployment of Web3 projects based on DLT, AI, and quantum computing. Enterprises need a reliable legal framework to assess business and operational risks effectively. Legal uncertainties can lead to business model failures, making it essential to establish clear legal guidelines for these Web3 transactions.
- **Regulatory Challenges:** National and international legislative processes struggle to keep pace with technological advancements. Traditional regulatory approaches often fail to address the rapid evolution of technology. UDEC will incorporate technology-neutral legal concepts, such as the principle of functional equivalence that allows laws designed for the physical world to apply to digital transactions, provided the technology achieves regulatory objectives equivalently or better.
- **Private Initiative:** Driven by academics and experienced practitioners, UDEC aims to provide guidance to Layer-0/1 developers and application creators. The goal is to enable end-users to structure legally valid and compliant transactions within the UDEC legal framework that helps to efficiently integrate these applications into chosen legal systems.
- **Respecting Legal Diversity:** Based on comparative legal analysis and international academic deliberation, UDEC will help preserve legal diversity in DLT, AI, and quantum technologies by embedding national principles of inclusion and respect for diverse perspectives and practices. By establishing guidelines that require the consideration of different cultural contexts in the development and deployment of these technologies, UDEC will ensure that such Web3-systems are designed and implemented in ways that are legally and culturally sensitive. This framework shall protect against the homogenization of technology, fostering an environment where technological advancements reflect and respect global diversity.
- **Sovereign AI System Integration:** UDEC enables sovereign AI by establishing a legal framework that allows AI systems to be tailored to the unique ethical standards and legal values of each country by embedding principles that mandate the consideration of local norms and regulations. UDEC sets the legal prerequisites to ensure that AI technologies respect the diverse legal contexts in which they operate and that the DLT system secures enforcement of digitally executed transactions. This customization is crucial for long-term AI governance as it promotes trust, compliance, and acceptance of AI systems across different jurisdictions. Moreover, it prevents the

imposition of a one-size-fits-all model, fostering a more equitable and culturally sensitive global AI landscape.

2.2 Hybrid Framework for AI Governance and DLT-based Transactions and Enforcement

2.2.1 Transcending Sovereign AI and Unified Global Approach to AI Governance

The counter position to UDEC enabling sovereign AI that is adjusted to the culture and jurisdiction of each country argues that such an approach could lead to fragmentation and inconsistency in AI governance. Critics may contend that creating AI systems tailored to individual countries' cultural and legal standards could result in significant disparities in how AI is implemented and regulated, making global cooperation and standardization difficult.

Any business digitally executed is framed in one or even more national laws. By implementing a hybrid framework, UDEC aims to bridge the gap between global consistency and local legal requirements and specificity in AI governance. This approach ensures that AI systems are governed by universal standards while allowing for necessary adaptations to align with the cultural values and legal requirements of individual countries. It promotes a balanced, inclusive, and adaptive governance model that can effectively manage the complexities of AI in a diverse and interconnected world of global trade.

The UDEC Codex needs to take into account the following considerations:

1. Global Legal Standards: UDEC establishes a set of the core common legal principles that all AI systems must adhere to, respected in all countries. These principles can include respect for human rights, non-discrimination, transparency, and accountability and operate on both input- and output governance of AI-systems.

2. Localized Adaptations: Within the framework of these universal principles, UDEC allows for localized adaptations that enable AI systems to align with the specific legal standards and cultural values of individual countries. This ensures that AI systems are relevant and acceptable to local populations while maintaining a baseline of global legal standards.

3. Dynamic Compliance Mechanisms: UDEC incorporates the rules for dynamic compliance mechanisms on the in- and output levels that allow AI systems to be audited and adjusted in real-time to ensure they meet both global standards and local regulations, such as rules on continuous monitoring, reporting, and adjustment processes.

4. Interoperability and Collaboration: UDEC promotes the legal prerequisites to ensure interoperability between different national AI frameworks for standardized

protocols and interfaces that facilitate cross-border collaboration and data exchange. This ensures that AI systems can work together seamlessly while respecting local regulations.

5. Global and Local Stakeholder Engagement: UDEC will frame the rules to include both global and local stakeholders (e.g. governments, industry leaders, civil society, and academia) into the AI governance system to ensure that policies are both globally coherent and locally relevant.

In drafting the UDEC, a cautious yet forward-thinking position will be taken with regard to recursive AI (also known as self-improving AI or AI that can enhance its own algorithms and capabilities), balancing innovation with precaution, ensuring that the development of self-improving AI systems is guided by stringent safety, legal, and transparency standards.

2.2.2 DTL- and AI-based Dispute Settlement and Enforcement

As in the real business world, Web3 transactions may lead to disagreements and disputes (e.g. in the case of poor contractual performance, fraud, or illegal transactions), which are resolved either by mutual agreement of the parties or by enforceable arbitration awards or court decisions. Digital systems require the same mix of flexibility for the parties to reach amicable solutions, which are fostered by the tight to obtain enforced awards/decisions. The UDEC integrates a dispute resolution system that balances the benefits of automated systems and human oversight.

In recent years, states have enacted ever stricter regulations to control financial market instruments and the physical global trade of goods ("export compliance"). The hope that it will be possible to escape these rules by transferring business transactions to the digital space or to Web3 is deceptive. Experience in recent years has shown that national courts and administrations take a tough line on such transactions. It therefore seems more sensible to introduce a controlled and systematic system that allows such measures to be enforced in digital transactions as well.

The combination of DLT and AI technologies provides digital evidence based on records from the negotiation to the execution of the contract, the securing of assets for enforcement and the reliable execution of the parties' agreements or decisions/court decisions. AI systems can be used to find solutions that better meet the expectations and demands of the parties to resolve their conflicts.

UDEC will introduce the rules for such dispute resolution processes, and how the enforcement of both, the outcome of the dispute settlement processes, and national authorities' acts should be implemented into Web3-business systems.

2.3 Market Development in Evolving Technologies

UDEC provides the legal certainty and regulatory framework necessary for the development of new markets in Web3 operating on DLT, AI, and quantum computing technologies. By facilitating market entry, ensuring compliance and trust, adapting to regulatory changes, promoting innovation and collaboration, and maintaining cultural sensitivity, UDEC creates a supportive legal environment for technological advancement and market growth. This comprehensive approach positions UDEC as a pivotal tool in the evolution of emerging technologies and the expansion of their associated markets.

2.3.1 Facilitating Market Entry

UDEC's clear and comprehensive legal framework reduces the barriers to entry for businesses aiming to do business in the Web3, operating on DLT, AI, and quantum computing technologies. By providing legal certainty, UDEC enables entrepreneurs and companies to confidently invest in new technologies and business models, knowing that they are operating within a defined legal structure. This encourages innovation and attracts investment, fostering the development of new markets.

2.3.2 Ensuring Compliance and Trust

Legal compliance is essential for building trust among market participants, including consumers, investors, and regulators. UDEC's guidelines ensure that transactions and operations in Web3, operating on DLT, AI, and quantum computing adhere to established legal standards. This compliance not only protects the interests of all stakeholders but also enhances the credibility and legitimacy of emerging markets, promoting their growth and sustainability.

2.3.3 Adapting to Regulatory Changes

The rapid pace of technological advancement often outpaces the ability of traditional regulatory frameworks to keep up. UDEC addresses this challenge by incorporating modern legal approaches such as the principle of functional equivalence, allowing laws designed for the physical world to be applied to digital and ai/quantum-driven transactions. This adaptability ensures that regulatory objectives are met, even as technologies evolve, providing a stable legal environment that supports continuous market development.

2.3.4 Promoting Innovation and Collaboration:

UDEC encourages collaboration among developers, businesses, and legal experts to create and implement technologies that meet legal and regulatory requirements. By fostering an environment of cooperation and shared knowledge, UDEC helps to drive innovation and the development of new applications and services. This collaborative approach accelerates the growth of markets in Web3, operating on DLT, AI, and quantum computing, enabling these sectors to reach their full potential.

2.3.5 Global Reach and Cultural Sensitivity

UDEC's inclusion of diverse cultural perspectives ensures that new technologies are developed and deployed in ways that respect and reflect global cultural diversity. This sensitivity helps to avoid the homogenization of technology and promotes the creation of culturally relevant applications and services. By addressing the needs and preferences of different cultural groups, UDEC supports the expansion of markets on a global scale.

2.4. Enabling New Regulatory Toolsets

UDEC plays a crucial role in enabling new regulatory toolsets that arise from digital contract-driven Web3 systems. By providing a solid legal foundation, promoting dynamic regulatory mechanisms, facilitating the creation of precedent systems, ensuring transparency and accountability, supporting regulatory innovation, and ensuring legal interoperability, UDEC sets the stage for the evolution of technology-driven legal systems. This comprehensive approach not only fosters innovation but also ensures that emerging technologies operate within a framework of legal certainty and compliance.

2.4.1 Establishing Legal Foundations for Digital Contracts

UDEC sets the legal groundwork for the creation, execution, and enforcement of Digital contracts within Web3 environments. By defining the minimum legal requirements and compliance standards, UDEC ensures that Digital Contracts operate beyond the smart contracts within a legally sound framework. This foundation is essential for the development of regulatory tools that can interact with and govern these contracts effectively. This requires new forms of "smart contracts, which we call "Digital Contracts", that are truly smart and legally valid contracts. Data protection and confidentiality considerations require flexible digital contract technology, which is particularly important in the area of DLT technology.

2.4.2 Enabling Dynamic Regulatory Mechanisms

Digital Contracts must be inherently programmable, allowing them to include the UDEC Framework and dynamic regulatory mechanisms that can adapt to changing legal and market conditions. UDEC set the rule enabling to support this adaptability by providing guidelines for incorporating regulatory compliance directly into the code of Digital Contracts. This ensures that Digital Contracts are as flexible as real ones, but can automatically enforce legal obligations, monitor compliance, and adjust to new regulations as they are introduced.

2.4.3 Facilitating the Creation of Precedent Systems

One of the key innovations enabled by UDEC is the establishment of precedent systems within Web3-based digital contracts. These systems allow for the accumulation and referencing of legal precedents created through the resolution of disputes and the enforcement of digital contract terms. This allows UDEC-based systems to integrate these precedents into their UDEC framework so that new Digital Contracts can reference past decisions to ensure consistency and predictability in legal outcomes.

2.4.4 Promoting Transparency and Accountability

UDEC promotes transparency and accountability in Web3 systems by mandating the inclusion of clear, transparent terms within Digital Contracts. This transparency is crucial for regulatory bodies to assess and enforce compliance. Furthermore, UDEC's guidelines for dispute resolution and arbitration ensure that all actions taken within digital contracts are documented and can be audited, fostering a robust system of accountability.

2.4.5 Supporting Regulatory Innovation

UDEC encourages the development of innovative regulatory tools that leverage the unique capabilities of digital contracts. UDEC-based systems can operate by including automated compliance checks, real-time reporting to regulatory bodies, and adaptive governance mechanisms that evolve with technological advancements. By providing a legal framework that supports these innovations, UDEC enables regulatory bodies to develop and deploy cutting-edge tools that enhance oversight and governance in Web3 environments.

2.4.6 Ensuring Legal Interoperability

As Digital Contracts operate across different jurisdictions and regulatory environments, UDEC entails rules on the applicable law which ensures legal interoperability by aligning with international legal standards and principles. This alignment allows systems program Digital Contracts to function seamlessly across borders, ensuring that they comply with relevant laws and regulations in all applicable jurisdictions. UDEC's role in harmonizing these legal frameworks is critical for the global scalability of Web3 systems.

3. Development and Implementation

Speed and Focus: UDEC, led by experienced academics and practitioners from the major technology jurisdictions worldwide, aims to develop the core legal principles quickly and focus on core issues. UDEC will integrate the latest legal developments at international and national levels.

UDEC Endorsement: The first draft of UDEC will be developed and discussed for final endorsement at [the Blockchain Festival Conference in Zug, Switzerland in May 2025]. Post-conference, the draft will be published for deliberation within the academic community and among stakeholders, including layer-0/1 developers, quantum technologists, AI data firms, law firms, regulators and international organizations, and lawmakers, among others.