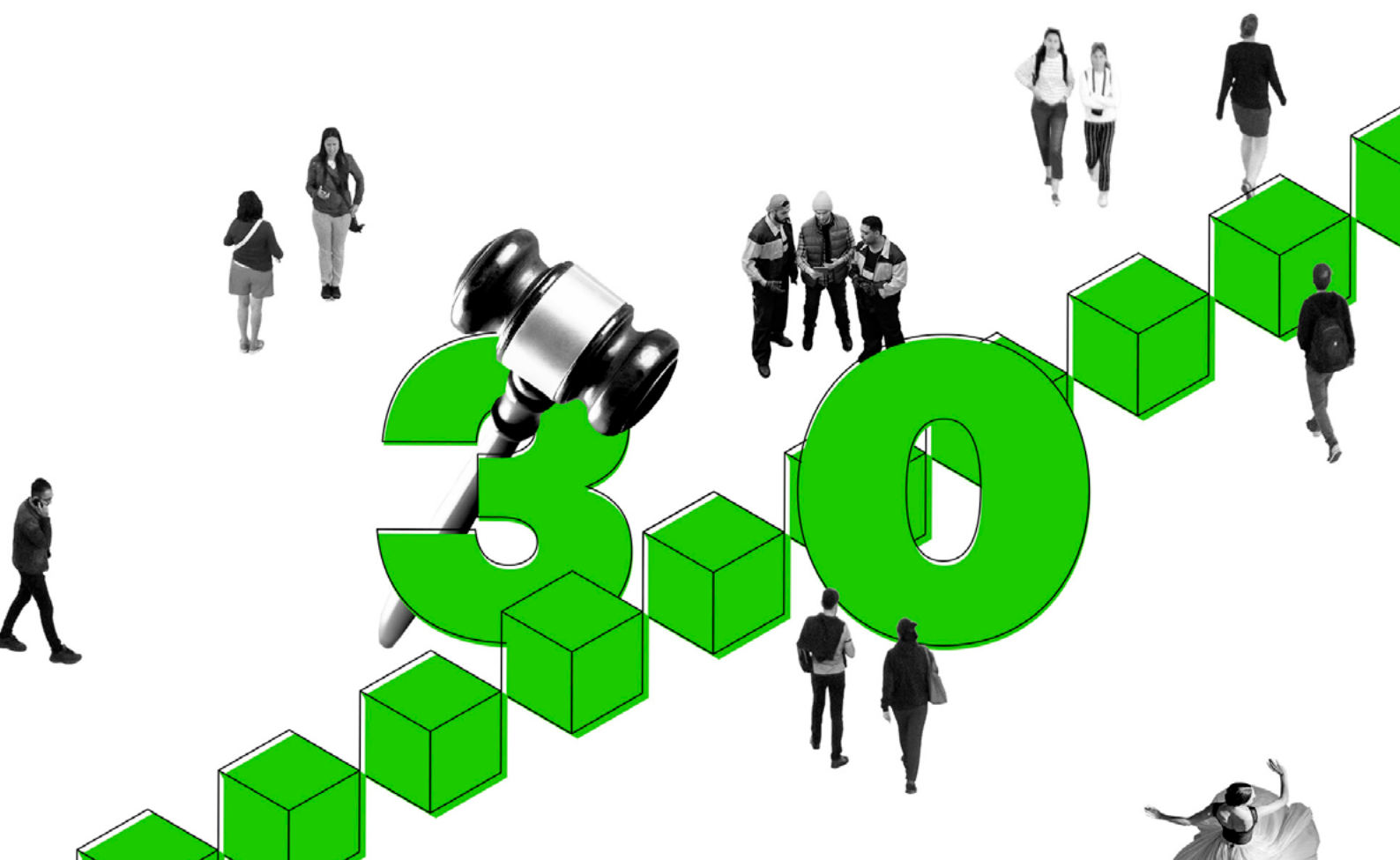


6+1 RECOMMENDATIONS FOR FINLAND

How can regulation boost the prerequisites
for Web 3.0 business?

**Jaakko Lindgren, Otto Lindholm, Kristo Lehtonen,
Helena Mustikainen and Pyry Niikkonen**



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6+1 recommendations for Finland – How can regulation boost the prerequisites for Web 3.0 business?

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Foreword

The development of the Internet is moving on to the next stage, Web 3.0, which means a return to the beginnings of the Internet – decentralisation. The decentralised model requires rules, data protection and trust in new ways.

The Web 3.0 paradigm also includes a strong emphasis on privacy protection. This is what makes it such an interesting opportunity. A decentralised internet may be fairer than the current one, which means there is an opportunity to build a human-driven, fair data economy in line with the European value base and Sitra's strategy. However, it depends on us humans and on the rules, legislation, technologies and business models we will develop.

It is in Finland's interest to build a better understanding of what the next phase of the internet is all about and to promote related competence and the creation of networks in Finland. We can accelerate the creation of a sustainable future with Web 3.0 and related decentralised technologies.

A common conception in Finland, and internationally, is that regulation of Web 3.0 is necessary so that it can be adopted on a wider scale. At the same time, care must also be taken not to hinder innovation in the sector with excessive regulation.

Sitra produces information and experiments and brings operators together. We want to be involved in foreseeing new trends so that they can be genuinely affected. In this study, we aimed to survey the legislative challenges from the perspective of companies operating in a new, emerging industry to promote the business opportunities in the field. We will continue to produce information about this topic for the next few months and publish articles in which we focus more specifically on the phenomena behind the threats and opportunities of this new revolution.

This study concentrates especially on promoting the business of companies operating in the Web 3.0 industry. Therefore, the baseline for the recommendations was the companies' experiences concerning the current operational opportunities in Finland. We would like to thank all the companies and startup entrepreneurs we interviewed for opening up to us about the day-to-day challenges of their industry. Many Web 3.0 entrepreneurs welcomed the interest shown in their industry and operational conditions by Sitra together with other public sector operators, such as ministries and tax authorities. We would like to thank the governmental blockchain network, which played an active role in providing extensive views on the regulation and activities of the authorities. We would also like to thank Dottir Attorneys Ltd for the implementation of the study.

We would like to extend our special thanks to the monitoring team for their contributions: Thank you Laura Eiro, Tomi Paavola and Maria Rautavirta from the Ministry of Transport and Communications, Satu Vasamo-Koskinen and Kristine Alanko from the Ministry of Economic Affairs and Employment, Susanna Siitonen from the Ministry of Justice, Jonna Korhonen from the Ministry of Education and Culture, Viveca Still from the Ministry of Finance as well as Saku Airosmäa and Jani Juva from the Tax Administration for your valuable comments during the study. Your in-depth competence and views were of great help in preparing the study.

15 February 2023

Kristo Lehtonen

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Tiivistelmä

Web 3.0 on internetin kolmas sukupolvi tai kehitysvaihe, jonka tavoitteena on tarjota hajautettua päätöksentekoa ja kaupankäyntiä mahdollistavia palveluja.

Syksyllä 2022 Sitra ja Dottir keräsivät haastattelujen ja sidosryhmätapaamisten avulla näkemyksiä web 3.0:n tilasta Suomessa sekä sellaisista lainsäädännöllisistä toimenpiteistä, joilla kehitystä voitaisiin viedä eteenpäin. Selvitys pohjautuu haastattelutuloksiin sekä Dottirin laatiman Suomen, EU:n ja verrokkimaiden lainsäädäntövertailuun. Selvityksen taustalla tärkeässä osassa oli Sitran sidosryhmien kanssa tekemä yhteistyö.

Selvityksen lopputuloksena syntyneet 6+1 suositusta tarjoavat vastauksia siihen, millä osa-alueilla muutoksia nykyiseen sääntelyyn tulisi tehdä ja samalla huomioida muutoksessa oleva EU-sääntely. Lisäksi suositukset tuovat esiin sen, miten Suomi voisi toimia edelläkävijänä web 3.0 -toimialalla.

Sitran suositukset ovat:

- 1. Kansallista virtuaalivaluuttasääntelyä on selkeytettävä.** Selvityksessä havaittiin, että lakiin kirjattu virtuaalivaluutan määritelmä on epätasallinen, mikä heikentää oikeusvarmuutta ja tulkintojen ennustettavuutta. Lisäksi kryptoarvopaperin oikeustila on epäselvä, mikä aiheuttaa huolta siitä, etteivät tulkinnot ole yhdenmukaisia eri viranomaisten kesken. Suosittelemme, että kansallinen virtuaalivaluuttasääntely saatetaan ennakoivasti EU:ssa valmisteilla olevan MiCA-asetuksen kanssa yhteensopivaksi ja kryptoarvopaperin oikeustilaa selkeytetään tekemällä lisäykset kryptovarasta arvopaperimarkkinalain arvopaperin määritelmään sekä sijoituspalvelulain rahoitusvälineen määritelmään.
- 2. DAO:ja tulee säännellä kansallisesti osuuskuntalain pohjalta.** Selvitys tuki havaintoa, että DAO:a, eli hajautettua itsenäistä organisaatiota, ei pysty tällä hetkellä rekisteröimään Suomeen. Suosittelemme, että DAO:ja tulee säännellä kansallisesti tekemällä tarvittavat muutokset osuuskuntalakiin ja siten mahdollistaa DAO:ille vapaaehtoinen rekisteröitymismahdollisuus Suomeen.
- 3. Älysovimusten turvallisuus on varmistettava ohjeistuksilla.** Selvityksessä havaittiin, että älysovimusten turvallisuus ja haavoittuvuudet herättävät huolta. Suosittelemme, että älysovimusten turvallisuus varmistetaan kansallisilla ohjeistuksilla, jotta turvataan älysovimusten koodin laatu ja tietoturvallisuus.
- 4. Kryptovarojen selkeä ja ennustettava verotus on varmistettava.** Haastatteluissa toimijat kokivat kryptovaluuttojen verotuksen monimutkaiseksi. Suosittelemme, että verottaja varmistaa, että ohjeistukset kryptovaroista ja niiden ilmenemismuodoista saavuttavat alan yritykset ja toimijat. Lisäksi veroratkaisuja tulee ennakoida ja arvioida uudelleen jo ennen EU:ssa valmisteilla olevan MiCA-asetuksen voimaantuloa.

- 5. Alan toimijoiden valvontaan ja neuvontaan on kohdistettava riittävästi resursseja.** Lainsäädännöstä johtuvat epäselvyydet lisäävät tarvetta Finanssivalvonnan tulkinnoille ja haasteena on riittävä resursointi. Suosittelemme varmistamaan, että Finanssivalvonnalla on riittävät resurssit alan yritysten ja toimijoiden valvontaan ja että alan toimijat saavat asianmukaista neuvontaa.
- 6. Matalan kynnyksen innovaatiotoimintaa on edistettävä sääntelyhiekkalaatikolla.** Pienten yritysten näkökulmasta käynnistämismatkaa koettiin liian raskaaksi. Suosittelemme, että perustetaan viranomaisten ja yritysten yhteistyötä vahvistava sääntelyhiekkalaatikko eli kokeilu-ympäristö rahoitusteknologialle web 3.0 -kokeilu- ja innovaatiotoiminnan mahdollistamiseksi yritysten elinkaaren alkuvaiheessa.

Lisäksi suosittelemme, että **web 3.0:n kehitystä edistetään Suomessa** huomioimalla se kansallisen digitaalisen kompassin toimeenpanossa lisäämällä yhteistyötä, osaamista ja julkista tukea sekä vauhdittamalla.

Sammanfattning

Web 3.0 är den tredje generationen eller utvecklingsfasen inom internet, vars syfte är att erbjuda tjänster som möjliggör decentraliserat beslutsfattande och handel.

Sitra och Dottir Advokatbyrå Ab samlade under hösten 2022 in synpunkter om statusen för web 3.0 i Finland med hjälp av intervjuer och intressentträffar. Även åtgärder inom lagstiftningen som kunde föra utvecklingen framåt samlades in. Utredningen baserar sig på Sitras intervjuresultat samt en lagstiftningsjämförelse som gjorts av Dottir och som jämför Finland, EU och jämförelseländer. Samarbetet med Sitras intressentgrupper utgör en viktig del av utredningens bakgrund.

Utredningens slutresultat utgörs av 6+1 rekommendationer, som erbjuder svar på vilka delområden som behöver förändras inom den nuvarande lagstiftningen, medan man samtidigt beaktar de förändringar som sker inom EU-regleringen. Dessutom framför rekommendationerna hur Finland kunde agera som en föregångare inom web 3.0-branschen.

Sitras rekommendationer är följande:

1. Den nationella lagstiftningen kring virtuella valutor behöver förtydligas.

I utredningen framkom det att virtuella valutor inte definierats tillräckligt tydligt i lagen, vilket försvagar tolkningars rättssäkerhet och förutsägbarhet. Dessutom är kryptovärdepappers rättsläge oklart, vilket väcker oro om att myndigheter inte tolkar lagregeln enhetligt. Vi rekommenderar att den nationella lagstiftningen kring virtuella valutor proaktivt görs förenlig med MiCA-förordningen, som bereds inom EU, och att rättsläget för kryptovärdepapper förtydligas genom att inkludera värdepappersmarknadslagen i definitionen av värdepapper. Dessutom borde kryptotillgångar inkluderas i den definition av finansiella instrument som angetts i lagen om investeringstjänster.

2. DAO:n bör regleras i nationell lagstiftning enligt lagen om andelslag. Utredningen stödde observationen om att DAO:n, det vill säga decentraliserade självständiga organisationer, inte för närvarande kan registreras i Finland. Vi rekommenderar att DAO:n skulle regleras nationellt genom nödvändiga ändringar i lagen om andelslag. Detta skulle möjliggöra att DAO:n frivilligt skulle kunna registrera sig i Finland.

3. Smarta avtals säkerhet bör säkerställas med hjälp av anvisningar. I utredningen framkom att säkerheten och sårbarheten hos smarta avtal väcker oro. Vi rekommenderar att smarta avtals säkerhet säkerställs med nationella anvisningar, vilket skulle säkerställa kvaliteten och datasäkerheten hos koden i smarta avtal.

4. En tydlig och förutsägbar beskattning av kryptotillgångar bör säkerställas.

I intervjuerna uttryckte aktörerna att beskattningen av kryptovalutor är komplicerad. Vi rekommenderar att skattemyndigheten säkerställer att anvisningarna om kryptotillgångar och deras olika former når företag och aktörer inom branschen. Dessutom bör skattelösningar förutses och bedömas på nytt redan före MiCA-förordningen, som är under beredning, träder i kraft.

- 5. Det behövs tillräckliga resurser för att övervaka och ge råd åt aktörerna inom branschen.** Oklarheter som beror på lagstiftningen ökar behovet av tolkningar från Finansinspektionen och otillräckliga resurser utgör en utmaning. Vi rekommenderar att Finansinspektionens resurser säkerställs så att de kan övervaka företag och aktörer inom branschen och att aktörer inom branschen får lämplig rådgivning.
- 6. Innovationsverksamhet med låg tröskel bör främjas med hjälp av en regulatorisk sandlåda.** Utredningen påvisar att små företag upplever att startfasens skyldigheter är för tunga. Vi rekommenderar att det grundas en regulatorisk sandlåda (engl. regulatory sandbox), eller en försöksmiljö för finansieringsteknik. Detta skulle stärka samarbetet mellan myndigheter och företag och möjliggöra försöks- och innovationsverksamhet inom web 3.0 i början av företagets livscykel.

Dessutom rekommenderar vi att **utvecklingen av web 3.0 främjas i Finland** genom att beakta den i genomförandet av den digitala kompassen, genom ett ökat samarbete, kunnande och offentligt stöd samt genom att påskynda tokeniseringen, dvs. utvecklingen av digitala förmögenhetsformer.

Summary

Web 3.0 is the third generation of the internet, a development stage of the internet that aims to offer services that enable decentralised decision-making and commerce.

In autumn 2022, Sitra and Dottir Attorneys Ltd collected views drawn from interviews and stakeholder meetings on the state of Web 3.0 in Finland as well as on legislative measures aimed at advancing development. This report is based on the results of the interviews and a legislative comparison between Finland, the EU and peer countries carried out by Dottir. Sitra's cooperation with stakeholders played an important contextual role in preparing the report.

The 6+1 recommendations created on the basis of the report results provide answers to the question of where changes should be made to current legislation while considering the changing EU regulation. The recommendations also highlight how Finland could be a pioneer in the field of Web 3.0.

Sitra's recommendations:

- 1. National virtual currency regulation must be clarified.** The report found that the definition of a virtual currency specified in law is imprecise, which reduces the legal certainty and predictability of interpretations. In addition, the legal status of crypto-assets is unclear, which raises concerns about inconsistent interpretations between different authorities. We recommend proactively bringing national virtual currency regulation in line with the Markets in Crypto-Assets (MiCA) Regulation under preparation in the EU and clarifying the legal status of crypto securities by adding crypto-assets to the definition of a security in the Securities Markets Act and the definition of a financial instrument in the Act on Investment Services.
- 2. Decentralised autonomous organisations (DAOs) must be nationally regulated on the basis of the Co-operatives Act.** The report supported the finding that it is currently not possible to register DAOs in Finland. We recommend that DAOs be regulated nationally by amending the necessary amendments to the Co-operatives Act, thereby enabling the voluntary registration of DAOs in Finland.
- 3. The security of smart contracts must be ensured through guidelines.** The report found that there are concerns about the safety and vulnerabilities of smart contracts. We recommend that the security of smart contracts is ensured by national guidelines to safeguard the quality and security of the smart contract code.
- 4. Clear and predictable taxation of crypto-assets must be ensured.** In the interviews, operators stated that the taxation of crypto-assets is complex. We recommend that the tax authorities ensure that the guidance on crypto-assets and their manifestations reach the companies and operators in the industry. It must also be possible to anticipate and reassess tax decisions even before the entry into force of the Markets in Crypto-Assets (MiCA) Regulation under preparation in the EU.

- 5. Sufficient resources must be allocated to supervise and guide the industry's operators.** The ambiguities arising from the legislation increase the need for interpretation by the Financial Supervisory Authority and the challenge is one of adequate resourcing. We recommend ensuring that the Financial Supervisory Authority has sufficient resources to supervise companies and operators in the sector and that the operators receive appropriate advice.
- 6. Low-threshold innovation must be encouraged in the regulatory sandbox.** Small companies felt that the obligations in the startup phases were too burdensome. We recommend the creation of a regulatory sandbox – a testing environment for financial technology to strengthen co-operation between public authorities and companies to enable Web 3.0 experimentation and innovation activities in the early stages of the business lifecycle.

We also recommend that the **development of Web 3.0 in Finland be promoted** by taking it into account in the implementation of the national digital compass by increasing co-operation, skills and public support, and by accelerating tokenisation – the increasing use of digital assets.

1 Introduction

Web 3.0, i.e. the third generation of the internet, is described as the decentralised internet. Web 3.0 may enable a fairer data economy and the building of a more sustainable future, but this depends on the value base used in the building process.

Web 3.0, i.e. the third generation of the internet, is described as the decentralised internet. Web 3.0 may enable a fairer data economy and the building of a more sustainable future, but this depends on the value base used in the building process.

Web 3.0 is the third generation of the internet or a development phase of the internet that aims to offer services that facilitate decentralised decision-making and commerce.

Web 1.0 refers to the dawn of the internet when web pages could only be read. In the 1990s, e-mail was important, and the dot-com boom and bubble burst during this period. Regulation focused on opening up the telecom sector to competition.

Web 2.0 refers to the current development phase of the internet, in which interactive web services are mainstream. Different marketplaces and platforms, such as Facebook or Uber, became widely available at the beginning of the 2000s. At the same

time, data about the users began accumulating in the digital giants' hands. Businesses use the collected data for profiling individuals and targeting advertisements. Instead of being customers, users of free services in particular turned into products. According to Sitra's view, the current development phase of the internet is unfair, as the interests of the digital giants are over-emphasised at the expense of the individual and society. The European Union issued the important General Data Protection Regulation (GDPR) in 2016, giving protection to personal data as well as means of managing one's data.

Web 3.0, i.e. the third generation of the internet, is described as the decentralised internet. Web 3.0 is based on managing data so that no central party or intermediaries are required for carrying out diverse transactions. Decentralisation can benefit all segments of society and the economy, such as the financial sector, healthcare, food supply and sustainable development. Web

Web 3.0; Web3

A development phase of the internet that aims to offer services that facilitate decentralised decision-making and commerce.

Decentralised decision-making can use decentralised autonomous organisations and commerce can use cryptocurrencies or non-fungible tokens, for example, which are typically authenticated with blockchains. Web 1.0 refers to the dawn of the Internet, when web pages could only be read, while Web 2.0 refers to the current development phase of the Internet in which interactive web services are mainstream.

3.0 may enable a fairer data economy and the building of a more sustainable future, but this depends on the value base used in the building process.

A record amount of risk capital has already been channelled into Web 3.0 in recent years, even more than during the internet boom of the 2000s. Blockchains (decentralised databases) and metaverses (collections of virtual-reality spaces) are part of Web 3.0.

The transformation will also give rise to new companies and business models. In the current model, we pay diverse intermediaries for creating trust, such as a bank for forwarding and securing payment transactions. However, there are situations where decentralisation without intermediaries, with blockchains, creates added value. For example, smart contracts, which are software produced with blockchain technology, enable the automatic exchange of items.

With smart contracts, trust is automated without intermediaries. Such a decentralised service can be compared to a vending machine where the user inserts money and

the automated machinery releases the product without the involvement of a salesperson at any time. A variety of financial services relating to loans and trading, for example, have already emerged on blockchains.

Currently, the Web 3.0 operators do not have a clear view of how these innovations are regarded, for example, in taxation or labour legislation. At the moment, it is also not possible to establish a decentralised autonomous organisation (DAO), as this legal person is not recognised in legislation. Measures that protect investors and prevent misuse in Finland are also needed. These are examples demonstrating why this study was needed to create the situational picture and prepare the recommendations.

The 6+1 recommendations created based on the survey results present views regarding which areas in current legislation require amendments while also considering the changing EU regulation. In addition, the recommendations highlight the efforts which could help Finland be the pioneer in the development of Web 3.0 technology.

Blockchain

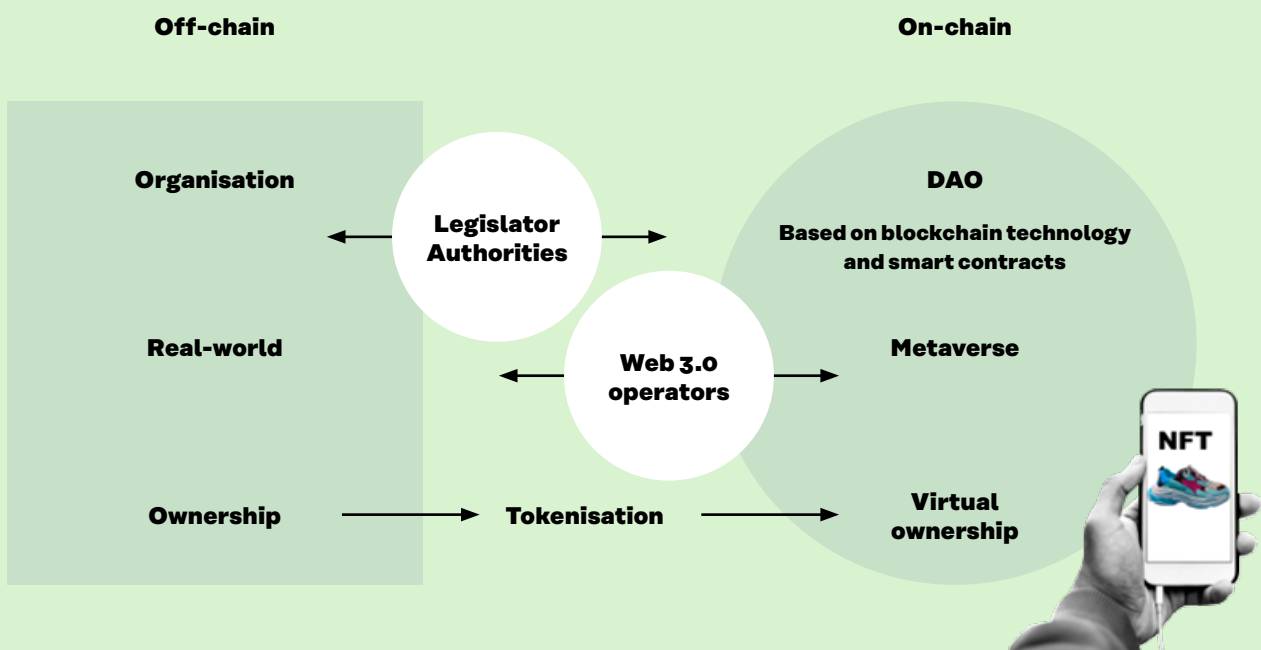
A continuously accumulating decentralised data entity in which all transactions are in chronological order, confirmed by all parties and stored in such a way that nothing can be altered or counterfeited.

A blockchain generates a digital log of transactions. The log records are copied and stored in a decentralised way in public digital networks without a determining server. Ethereum (2014) is the largest and best-known blockchain. Blockchain technology can be used to create various Web 3.0 applications, services and products. The subsequent alteration or counterfeiting of transactions entered in the blockchain is practically impossible because each block in the chain contains the hash of the previous block.

Off-chain and Web 3.0

The entity between the real world and Web 3.0 can be perceived by examining the off-chain and on-chain worlds. Applications and phenomena based on blockchain technology include cryptocurrencies, non-fungible tokens (NFTs), decentralised autonomous organisations (DAOs) and metaverses. These kinds of applications often use smart contracts, in other words, code which implements different transactions as long as certain pre-determined preconditions are met. The blockchains and rules defining their exchange of information, i.e. protocols, create the technological architecture on which Web 3.0 is built.

Figure 1. A simplified overall picture of the Web 3.0 phenomenon



Messengers, i.e. Web 3.0 operators, are needed when items or information from the real world are imported to the blockchain. They form a link between the physical world and Web 3.0 (off-chain, on-chain). Tokenisation means importing real-world assets to the blockchain by converting them into a digital token form. These kinds of processes form bridges between the off-chain and on-chain worlds.

Public authorities, such as legislators and authorities, also play their roles in these two worlds. Their role is to control and monitor the on-chain and off-chain operations and to define clear rules for the operations. Their duties also include enabling the operations and supporting the industry and development.

Description of the study phases

The study was prepared in three phases. During the first phase in autumn 2022, feedback and views on the state of Web 3.0 in Finland were collected through interviews and stakeholder meetings as well as on measures targeted at the legislation and authorities which are aimed at advancing the development in the industry.

The written study phase began at the end of 2022. This phase focused on analysing and comparing the legislation in Finland, the EU and the peer countries and preparing the first version of the written study based on the observations and interview phase results.

The project's third phase at the beginning of 2023 included discussions with the study participants and the publication of the study results as part of Sitra's studies series.

In the first phase, the key Finnish Web 3.0 operators and stakeholders were interviewed. Most of the interviewees were representatives of companies operating in the industry, but a couple of interviewees came from the public and academic sectors. A total of 14 operators from 12 different organisations were interviewed.

The interviews were supported by a short questionnaire which surveyed the general views about Web 3.0 as a phenomenon and mapped the bottlenecks in legislation and activities of the authorities which complicate the Web 3.0 operations in Finland. One of the interview phase's aims was also to collect observations from the peer countries which have adopted Web 3.0-related legislation or public administration measures.

In addition to the actual interviews, views were collected through stakeholder meetings during which the content of the study was discussed among a larger group of people. The stakeholder meetings were attended by a large number of experts from Finnish startup companies (nearly 30 people) and from the governmental blockchain network (more than 20 people). The

progress and observations of the study were also discussed in regular monitoring team meetings, which analysed the views of the public authorities concerning the phenomenon. Representatives of the following organisations participated in the monitoring teamwork: Ministry of Transport and Communications, Ministry of Justice, Ministry of Education and Culture, Tax Administration and Ministry of Finance.

The interviews were summarised, and the summary was used to analyse the legislation in Finland, the EU and the international peer countries. The written study also covered a wide range of different sources, such as studies, articles and research. The objective set for the study was to describe the legal situation related to Web 3.0 in Finland and to propose concrete measures concerning the legislation and activities of public authorities which could promote the establishment and competitiveness of Web 3.0 companies in Finland.

Why should Finland be interested in Web 3.0?

The material collected in the interviews and stakeholder meetings showed that operators in the private and public sector perceived Web 3.0 mainly as an opportunity for Finland. If Finland wants to be a trailblazer in the fair and sustainable data economy, an open-minded approach to new technology is required. This, however, does not mean that all activities should be allowed without impact assessment. An enabling operating environment effectively attracts cryptocurrency-related business operations, for example, but may also lead to problems, such as money laundering. In Finland, both the public sector and Web 3.0 companies share the willingness to create clear rules. Few feel that all kinds of Web 3.0 business should be either categorically allowed or prohibited. Clear business rules are seen as benefitting the entire industry.

Finland has worked purposefully in the twenty-first century to establish its role at the forefront of technological development. This aim has also been frequently highlighted in public guidelines. For example, Prime Minister Sanna Marin's Government programme outlines in the "[Finnish technology policy in the 2020s](#)" report that Finland should try to attract the leading blockchain companies. This means that we should act as a technology pioneer. In addition to setting public targets, being a pioneer requires specific concrete measures.

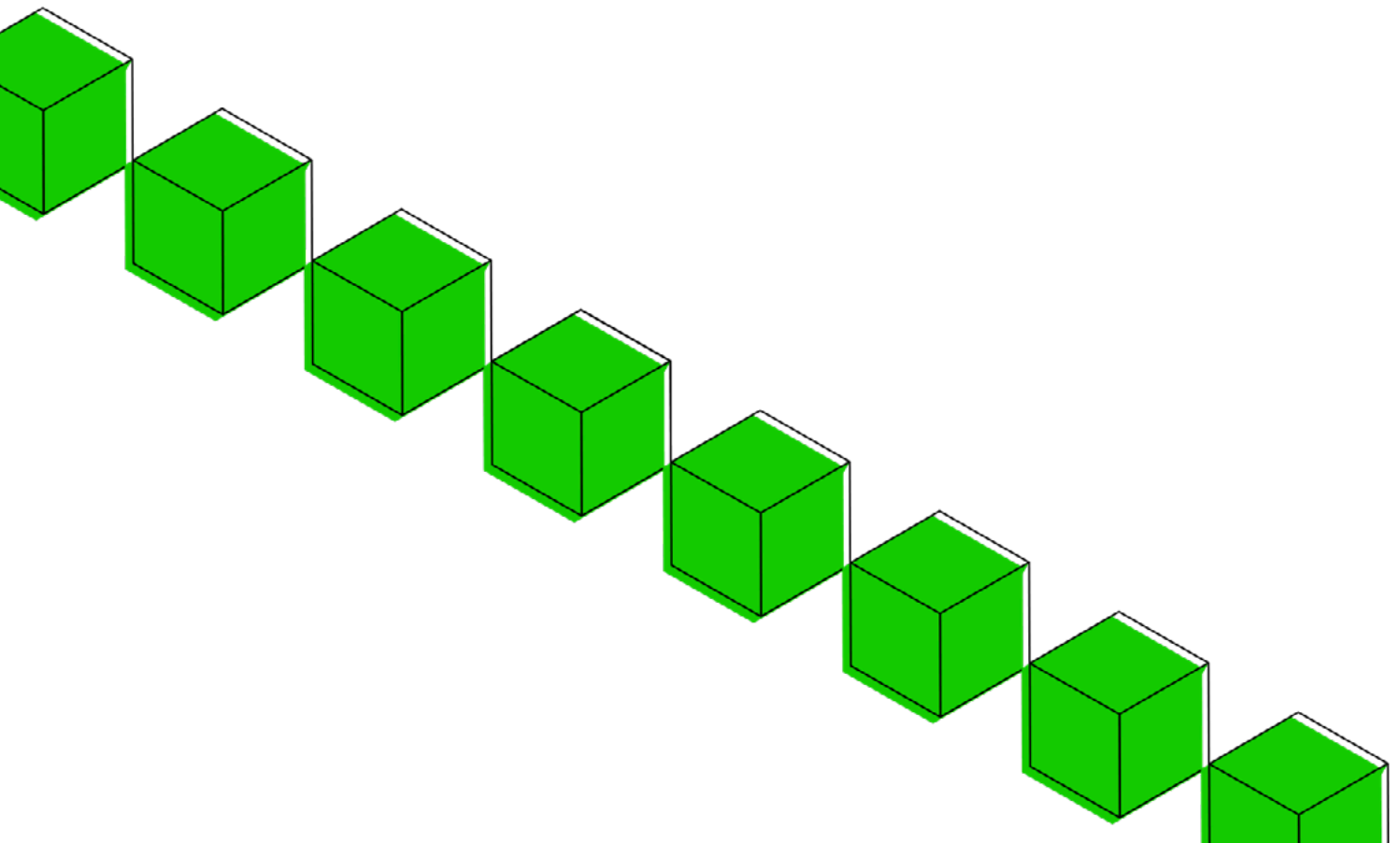
Finland has the capacity to benefit from Web 3.0 opportunities

Compared to Europe's large concentrations of companies, Finland is not an attractive market for Web 3.0 companies. Many European countries, such as the United Kingdom, Switzerland, Germany and the Baltic countries have managed to attract Web

3.0 companies, while others have been merely bystanders.

Some small EU Member States, such as Estonia, have proven that it is possible to lure Web 3.0 operations from the traditional financial hubs with an active and open approach. In 2021, 253 actively registered virtual currency providers operated in Estonia – which is nearly half of all the providers in the world. As a comparison, only eight virtual currency providers were registered in Finland at the time of preparing the study.

Finland has an exceptionally high level of competence and knowledge in technology relative to its size. Professionals enable the birth of innovations and the growth of Finland's competitiveness in the global markets. In other words, Finland has the capacity to attract Web 3.0 operations and companies to Finland, but, so far, Finland has not succeeded in this as well as peer countries, such as Estonia. Attractiveness can be boosted through measures such as clarifying regulations.



2 Finland's freedom of regulation is limited – the upcoming EU “cryptocurrency GDPR”

The European Union (EU) is preparing a comprehensive regulatory framework for the crypto-asset provision in the EU area. The Markets in Crypto-Assets (MiCA) Regulation will also have central importance for Finland's regulation once it enters into force.

The EU is preparing a comprehensive regulatory framework for the crypto-asset provision in the EU area. The key initiative is the preparation of the regulation concerning the Markets in Crypto-Assets, the so-called [MiCA Regulation](#) (COM/2020/593 final), which is part of the more extensive digital finance legislative package. In addition to the MiCA Regulation, the digital finance package contains the digital finance strategy and legislative proposal on digital operational resilience ([DORA Regulation](#)). The package also includes a proposal that concerns the distributed ledger technology pilot regime for wholesale ([DLT pilot regulation](#)). By defining the shared regulatory framework for the entire EU area, the EU legislator aims

to improve the predictability of cryptocurrency operations, protect investors and prevent misuse. In addition, the regulation will harmonise the scattered national legislation under the EU's shared framework. The aim is ambitious and, after entering into force, the MiCA Regulation will be the most comprehensive regulation package concerning cryptocurrencies so far.

The MiCA Regulation is unofficially called the GDPR of cryptocurrency. With the regulation proposal, the EU legislator aims to bring the crypto-assets and crypto-asset service providers, which were previously either regulated through national regulation or completely outside the scope of regulation, under EU regulation. In addition, the regulation will harmonise the scattered national legislation under the EU's shared framework. The aim is ambitious and, after entering into force, the MiCA Regulation will be the most comprehensive regulation package concerning cryptocurrencies so far.

The MiCA Regulation focuses especially on stablecoins, which refer to cryptocurrencies which attempt to peg their market value to some existing fiat currencies, such as the euro and dollar. The regulation proposal is still evolving, but it is clear that if it is enforced, it will have a considerable impact on the development of the industry in the EU and outside of it.

MiCA Regulation

The MiCA Regulation is part of a more extensive digital finance regulation package in the EU which is under preparation. By defining the shared regulatory framework for the entire EU area, the EU legislator aims to improve the predictability of cryptocurrency operations, protect investors and prevent misuse. The regulation will harmonise the scattered national legislation under the EU's shared framework.

The interview results show that the opinions about the MiCA Regulation are divided in the industry. Some of the operators feel that the regulation proposals represent a positive development that will provide long-awaited predictability and operational reliability for the crypto-asset providers in the EU. At the same time, the smaller companies in particular are worried about the proportionality of the regulation.

Other ongoing Web 3.0 initiatives in the EU in addition to the MiCA Regulation

The MiCA Regulation will be directly applicable in the Member States, which means that it will also have a central importance for Finland's freedom of regulation. However, the MiCA Regulation is not the only Web 3.0 initiative pending in the EU. The EU legislator has also made cautious initiatives on the security of blockchain technology by setting minimum requirements for smart contract technology, for example in the EU's proposal for a Data Act under preparation. In addition to the regulation proposals, there are several other projects ongoing in the EU which aim to promote Web 3.0 innovations and the deployment of blockchain technology.

For example, the objective of the joint European Blockchain Partnership initiative (EBP) of the EU Member States, Norway and Liechtenstein is to implement a Union-wide blockchain strategy and public administration blockchain infrastructure as well as support the utilisation of blockchain technology in public sector services. The project is a development sandbox, i.e. a testing environment, from both regulatory as well as technological perspectives.

Another noteworthy initiative is the registered association established in 2019, INATBA (the International Association of Trusted Blockchain Applications), which

provides a global forum for DLT (Digital Ledger Technology) developers and users where they can interact with the legislative authorities and political decision-makers. DLT refers to a form of so-called distributed ledger technology in which the blockchain is also included. The initiatives described above and the DLT pilot regulation are part of the EU's extensive set of measures promoting the adoption of blockchain technology.

The pending regulation projects and other initiatives prove that the EU legislator is willing to guide the Web 3.0 phenomenon comprehensively.

The MiCA Regulation in its current form will not cover every kind of crypto-asset. For example, the wording of the MiCA Regulation proposal leaves the crypto-assets that resemble securities, i.e. crypto securities, within the scope of national discretion. The non-fungible token (NFTs) are also not covered by the scope of the MiCA Regulation.

Finland must be active in lobbying efforts regarding Web 3.0 in the EU

Most of the MiCA Regulation's provisions are expected to be applicable in the third quarter of 2024, at the earliest. The MiCA Regulation grants the crypto-asset service providers a passport authorisation, in other words, an authorisation to operate in the entire EU area on the basis of an authorisation received in one Member State. This encourages operators to obtain an authorisation fulfilling the requirements of the MiCA Regulation from the first Member State where this is possible to enable operations in the entire EU area. Making timely administrative or legislative amendments related to the licensing authority, for example, is a priority goal for Finland. It is also worth

contemplating whether these measures should be already taken before the Regulation formally enters into force.

Most of the Web 3.0 manifestations, such as NFTs, DAOs and metaverses, will remain outside the scope of the EU regulation even after the MiCA Regulation has entered into force, but the EU legislator may also become active in terms of these phenomena. Finland must be active in lobbying efforts regarding Web 3.0 in the EU. The EU seems to be

encouraging its Member States to promote blockchain technology-related experiments and innovations. The EU-level Web 3.0 regulation initiatives under preparation already include sandbox regulation that promotes experiments. In other words, Finland should follow the EU's initiatives and advance experiments through the EU's experimental projects in addition to the national measures.

Virtual currencies, cryptocurrencies, virtual assets or crypto-assets?

The concepts of virtual currency and cryptocurrency are often used interchangeably. Although the concepts may refer to the same thing, their meanings differ from each other to some extent. Virtual currency is the umbrella concept which includes currencies in a digital form that are not legal payment instruments, i.e. official currencies or fiat currencies issued by the central bank or the public authorities.

Cryptocurrencies form a subset of digital currencies. They are virtual currencies whose accounting makes use of cryptography, i.e. encryption algorithms, and distributed ledger technology, such as blockchains. The Finnish virtual currency legislation uses the virtual currency concept, which in many cases in practice means cryptocurrencies. However, the industry commonly talks about concrete cryptocurrencies instead of virtual currencies.

The terms virtual assets or crypto-assets are also often used instead of virtual currencies and cryptocurrencies. The concept of virtual assets was specified in the rules of the Financial Action Task Force on Money Laundering (FATF) standards. A virtual asset refers to any representation of digital value or right that can be digitally transferred and stored.

The virtual assets concept does not cover any digital representation of official or fiat currencies, but the concept refers to virtual assets forms issued by a party other than the central bank or public authorities. However, the digital representations of fiat currencies can be included within the scope of the digital assets concept.

Crypto-assets, on the other hand, by definition fall under the concept of virtual assets, and they are virtual assets whose accounting makes use of cryptography, i.e. encryption algorithms and distributed ledger technology such as blockchains. Cryptocurrencies are one subcategory of crypto-assets, but the concept also includes other forms of assets, such as NFTs used for payment and investment purposes or securities issued utilising blockchains. However, the concepts of virtual assets and crypto-assets are often used interchangeably and typically refer to cryptocurrencies in practice.

3 Current state of Web 3.0 regulation in Finland

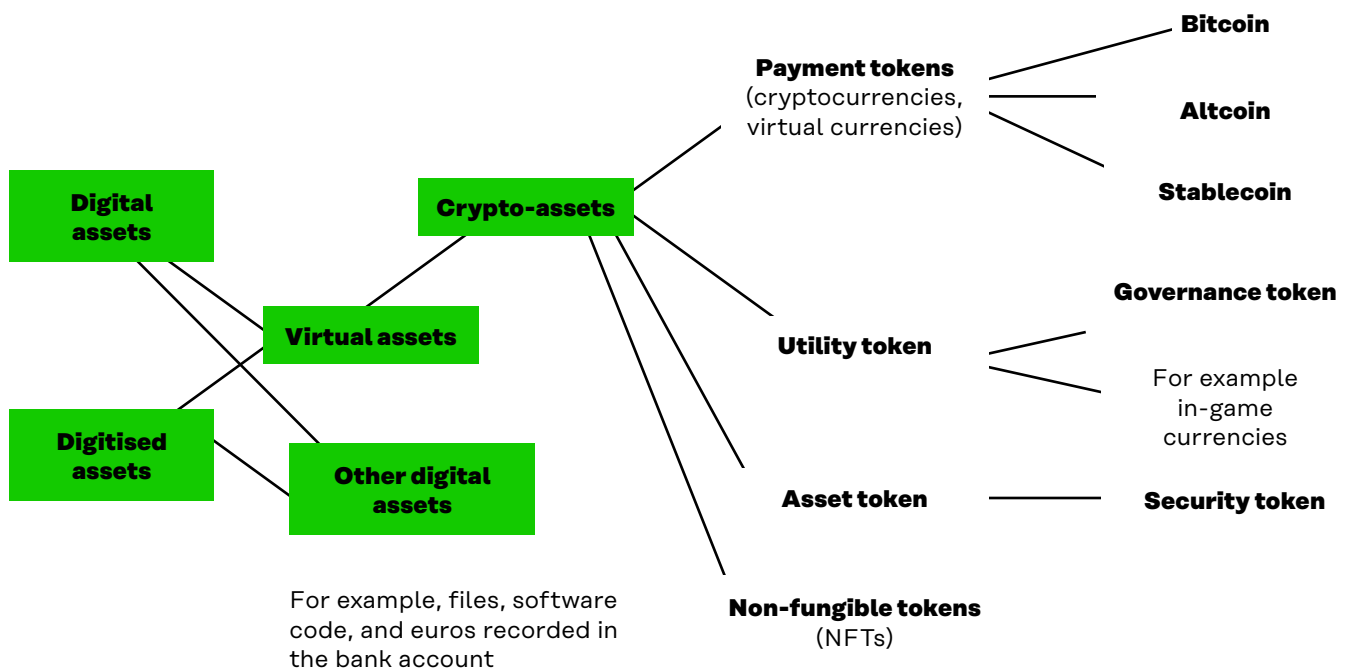
Virtual currency operations are regulated in Finland, but the definition of a virtual currency is viewed as imprecise. It does not recognise the multiple manifestations of crypto-assets and does not cover all Web 3.0 phenomena.

In Finland, the Act on Virtual Currency Providers, which regulates virtual currency providers and virtual currency operations in Finland, can be seen as regulation targeted at Web 3.0. On the other hand, the other application forms of Web 3.0, such as NFTs, DAOs and metaverses, fall outside the national regulation as well as the EU regulation.

The reason why the Web 3.0 regulation is focused on virtual assets and

cryptocurrencies is that cryptocurrencies have been the most visible manifestations of Web 3.0, which have also been associated with problems. Cryptocurrencies have been linked to money laundering and terrorist financing. This has led to an increase in international prevention of money laundering and terrorist financing obligations, which has been reflected in national regulation.

Figure 2. An example of the classification of the virtual asset concept



Digital assets and digitised assets are umbrella concepts. These concepts are divided into more specified categories of virtual assets and other digitised assets. Virtual assets can include representations of digital value or rights that can be digitally transferred and stored. Currencies in digital form which are issued by an official party, such as euros and dollars, are not, however, included within the scope of the virtual asset concept. Other digitised assets include files, software code and digital records of official currencies.

The concept of virtual assets includes the concept of crypto-assets, which are virtual assets whose accounting makes use of cryptography, i.e. encryption algorithms, and distributed ledger technology, such as blockchains. Different digital tokens, which can be divided further by their properties and purposes of use, are included under crypto-assets. The most common division is between different payment tokens, i.e. cryptocurrencies, utility tokens, asset tokens and digital non-fungible tokens (NFTs), which all are used for different purposes.

This illustration aims to show that virtual assets and crypto-assets have a much broader meaning and purpose that extends beyond financial policy than is generally thought, and not all digital tokens have similar properties or purposes of use as virtual currencies.

Cryptocurrency regulation

In Finland, the [Act on Virtual Currency Providers](#) regulates virtual currency operations. According to the scope of the Act laid down in section 1 of the Act, it applies to business operations practised by virtual currency providers. The Act on Virtual Currency Providers regulates, true to its name, the virtual currency providers, their registration obligation, operations and supervision. Underlying the Act is the EU's

5th Anti-Money Laundering Directive, the requirements of which were enforced by enacting the national act regulating virtual currency operations.

The most significant obligation under the Act on Virtual Currency Providers is the obligation of all virtual currency providers to register themselves in Finland in the register maintained by the Financial Supervisory Authority to pursue their activities in Finland. Section 6 of the Act on Virtual Currency Providers lays down the prerequisites for registration:

“The Financial Supervisory Authority must register the party submitting the notification as a virtual currency provider if

1. the applicant has the right to carry out their business operations in Finland;
2. the party submitting the notification is not bankrupt and, if the party is a natural person, they are of age, their competency is not limited and they do not have a trustee;
3. the party submitting the notification is reliable.”

According to section 15 of the Act, the Financial Supervisory Authority is obligated to prohibit the provision of virtual currency services which is carried out in violation of the Act on Virtual Currency Providers without registration. The registration obligation of the Act on Virtual Currency Providers is based on the EU's 5th Anti-Money Laundering Directive, which requires the Member States to register the providers of virtual currency exchange services and wallet services which offer services for holding, storing and transferring virtual currencies on behalf of their customers. However, the Directive does not provide for the general requirements of registration, supervising authority or carrying out operations without registration and related consequences. These issues have been left to the national discretion of each Member State.

Although the obligations and operations of virtual currency providers are regulated rather comprehensively in the Act, the regulation concerning the actual virtual currencies is mainly left outside the regulation, with the exception of the definition of the virtual currency concept.

According to section 2 of the Act on Virtual Currency Providers, a virtual currency means:

“value in digital form:

- A.** which has not been issued by a central bank or another public authority and which is not a legal means of payment;
- B.** which a person can use as a means of payment; and
- C.** which can be transferred, stored and traded electronically.”

The apparent imprecision of the definition under the EU’s 5th Anti-Money Laundering Directive is largely explained by the background of the regulation. However, it must be noted that the purpose of the virtual currency definition under the Anti-Money Laundering Directive is not to leave too much room for interpretation. One of the key objectives of the 5th Anti-Money Laundering Directive was to develop a harmonised concept of a virtual currency to promote legal certainty in the EU. However, the development of cryptocurrencies has led to a situation in which the definition of the Directive has become outdated. At the EU level, there has been a shift from the use of the general virtual assets definition to using the more precise crypto-assets definition, which is visible, for example, in the MiCA Regulation. The crypto-assets definition of the MiCA Regulation pays more attention to the different virtual assets and crypto-assets in accordance with their actual properties and purposes of use.

When compared to the definitions adopted in the international and recent EU regulation proposals, the virtual currency definition of the national Act on Virtual

Currency Providers is regarded as imprecise and open to interpretation. The concept’s openness to interpretation puts pressure on the authorities applying the Act and, in the worst case, makes the application of the Act unpredictable between different authorities. The shortcomings of the virtual currency concept specified in the Act have been recognised in Finland also at the official level. For example, the Financial Supervisory Authority assesses crypto-assets’ virtual currency nature on a case-by-case basis using detailed assessment criteria. However, when the statutory definition is unclear, the predictability and consistency of authority interpretations is at risk. Uncertainty also undermines Finland’s image as an attractive country for Web 3.0 business.

Non-fungible token (NFT) regulation

There is no special regulation concerning digital non-fungible tokens at the EU or national level. Although it is anticipated that the EU legislator will become active on the matter, it seems that NFTs will not be the main target of the MiCA Regulation. The introduction of the regulation proposal states: “In order to ensure a proportionate approach, the requirements to draw up and publish a crypto-asset white paper should not apply to offers of crypto-assets - - that are unique and not fungible with other crypto-assets.”

On the other hand, the EU legislator seems to have changed its approach to NFTs during the preparation of the MiCA Regulation proposals. At the beginning of the regulation preparation, the EU Commission announced that NFTs would be left outside the MiCA Regulation if they are included under any existing crypto-asset classification. However, statements made since have emphasised that the EU legislator interprets NFTs as a limited group of assets, which does not include tokens issued as part

Non-fungible token (NFT)

A certificate of the right to a digital copy whose current owner and possession history are ensured with blockchain technology.

The owned object is usually referred to as a web link. The owned object can be a digital work, property, object of art, building, degree or a company's share, for example. The rights enjoyed by the owner depend on the contract between the seller and buyer of the non-fungible token, which can include intellectual property rights, such as copyrights, title or right of possession. Some non-fungible tokens sold through centralised intermediary services do not contain any rights recognised in legislation due to their legal position remaining unclear. The abbreviation for non-fungible tokens is NFT.

of a digital collection even if they are called NFTs. In other words, it seems that it will remain unclear whether NFTs are covered by the crypto-assets definition of the MiCA Regulation. This puts interpretation pressure on the national legislators and authorities if the EU legislator will not decide to tackle the problem through harmonisation measures.

Decentralised autonomous organisation (DAO) regulation

A decentralised autonomous organisation (DAO) is an organisation that operates independently or autonomously without the management of a traditional organisation and uses blockchain technology, smart contracts and digital tokens. No special regulation is targeted at DAOs in Finland, and the legislation does not recognise their organisation and governance models. For the time being, a DAO is rather a poorly understood form of organisation in Finland, and it cannot currently be considered a legal person according to Finnish legislation. This means that DAOs cannot take legal actions, such as being a party to an agreement or paying a salary to an employee.

When studying the national regulatory framework concerning the operations of DAOs, a problem similar to the one concerning virtual currency regulation on crypto

securities will arise. At the national and EU level, there is no clarity on the definition of security and on what the status of the crypto-assets is in relation to the security definition. This leads to uncertainty about whether the digital tokens, i.e. governance tokens, issued when establishing the DAO should be viewed in accordance with the Act on Virtual Currency Providers or from the perspective of the securities legislation. If the governance token issuance is regarded as a virtual currency issuance, should the DAO be registered as a virtual asset provider with the Financial Supervisory Authority and how could this be carried out in practice when Finland's legislation does not recognise DAOs as legal persons? In some cases, the obligations of both the Act on Virtual Currency Providers as well as the Securities Markets Act may be simultaneously targeted at the operator.

The other question is related to the organisation of DAOs' liabilities. As long as DAOs cannot be regarded as legal persons in Finland, they cannot bear any legal responsibility. Responsibility could be assigned to token holders under joint and several liabilities. In practice, this responsibility model is problematic, as DAO members may be located around the world and their identities may be concealed. If a DAO is organised in a way similar to a company form such that a certain group of people is responsible for the decision-making, it would be natural to

Decentralised autonomous organisation (DAO)

An organisation that operates individually or autonomously without the management of a normal organisation and uses blockchain technology. The members direct operations directly with smart contracts and tokens in their possession. Decentralised autonomous organisations can be seen as co-operatives of the digital era.

The operational and decision-making rules of a decentralised autonomous organisation are stored as smart contracts, which are based on blockchain technology. The same technology is also used for storing the decisions of the organisation. The organisation operates by its self-defined rules; for example, every member of the organisation can make decision proposals which are voted on. Decentralised autonomous organisations can be used for investing and collecting art, among other things. Needs for legislative amendments on whether decentralised autonomous organisations will be classified as legal persons are currently being assessed in Finland.

assign them responsibility. One alternative would be to extend responsibility to DAO founders and token issuers. It should also be noted that the operations of the DAO would determine how many regulatory requirements would be targeted at it. For example, in investment activities and business operations, anonymous ownership is not realistic from the perspective of tax legislation and the prevention of money laundering. These questions are relevant in public blockchains, in other words, in blockchains with open access. Similar problems are not necessarily associated with closed blockchains, as they have a designated centralised operator who can limit the blockchain access of users.

Smart contract regulation

A smart contract means a programme implemented with blockchain technology that makes it possible to automatically barter value-containing objects with pre-defined rules. Finland has no special legislation concerning smart contracts. They are still a rather unknown technology form in Finland, but at the same time, an inseparable element of different applications built on blockchains, such as cryptocurrencies and DAOs. The

legal situation of smart contracts is unclear for the time being.

There are also ambiguities related to smart contract regulation at the international and EU levels. The view of the industry is that emphasis should be placed on regulating the operations and operators instead of the actual technology. The need for protecting consumers from the risks associated with smart contracts may be far too high to leave smart contracts completely outside regulation.

The national contractual liability regulation and the law of obligations and their basic tenets also apply to smart contracts. This kind of regulation is by nature technology-neutral, so it is challenging to find any reasons for the need to enact any additional national legislation concerning smart contracts. However, the security aspect of smart contracts should be separately re-assessed.

Neither Finland nor the EU has any regulation that would cover the minimum requirements of smart contracts. However, the EU legislators seem to have become active on the matter, as the [proposal for a Data Act](#) published by the European Commission in February 2022 includes provisions concerning smart contracts. Article 30 of the Data Act is headed “Essential requirements regarding smart

Smart contract

A programme implemented with blockchain technology that makes it possible to automatically barter value-containing objects with pre-defined rules.

The operating logic and results of a smart contract are public. A smart contract removes intermediaries from the process and makes it trustworthy.

Smart contracts are used in several fields, such as decentralised finance.

contracts for data sharing”. It contains a rather general set of “essential requirements” that the vendor of an application using smart contracts must comply with. They are related to, for example, a situation in which there is a coding error in the smart contract and it must be possible to interrupt its operation. The regulation also grants authorisation to establish European standardisation organisations to draft harmonised standards concerning the requirements.

The proposal shows that the EU legislator may become active in terms of the questions related to the security of smart contracts. However, conclusions that are too far-reaching should not be made, as the Data Act is not a general, regulation framework for smart contracts.

Metaverse regulation

A metaverse is a collection of virtual-reality spaces using the internet, in which users can interact within and between virtual spaces. There is no special metaverse regulation in Finland or at the EU level, but the EU legislator seems to have become somewhat more active on this issue.

Metaverses and virtual reality bring up several interpretative questions related to intangible rights. When real-world items and things are transferred to virtual worlds, concerns about the application and protection of industrial rights and copyrights arise. In this case, it may be unclear whether the forms of protection in the real world offer protection also in virtual worlds.

When consumption and ownership transfer to virtual worlds, data portability and interoperability between the application and different worlds is a crucial issue from the users’ perspective.

Authentication may also cause problems in metaverses. For users, it would be appropriate that they could operate between different virtual worlds using one single digital identity.

Metaverse

A collection of virtual-reality spaces using the internet, in which users can interact within and between virtual spaces. The metaverse adds a feeling of space and characters to the internet and creates a network that connects virtual worlds. The metaverse can be used for communication, creating events and assembling.

4 6+1 recommendations for promoting Web 3.0

The 6+1 recommendations present views regarding which areas require amendments to the current legislation while also considering the changing EU regulation. In addition, the recommendations shed light on how Finland could act as a pioneer in the Web 3.0 industry.

Recommendation 1. National virtual currency regulation must be clarified

The feedback received in the interviews show that the virtual currency concept provided in the Act on Virtual Currency Providers is imprecise and open to interpretation, which causes uncertainty in the application of the regulation. The concept specified in the Act does not pay enough attention to the different properties and purposes of the use of crypto-assets. This

means in practice that digital tokens which do not have properties and purposes of use resembling currencies are too easily considered virtual currencies. Virtual assets and crypto-assets have numerous manifestations which cannot be unambiguously interpreted as virtual currencies in accordance with the current definition.

Observations/need	Recommendations	Examples of peer countries
<p>The definition of a virtual currency specified in law is imprecise, broad and open to interpretation, which undermines the legal security and predictability of interpretations.</p> <p>The legal situation of crypto securities is unclear, which causes concerns that the interpretations are not in line between different authorities.</p>	<ul style="list-style-type: none"> The national virtual currency regulation must be proactively made compatible with the MiCA Regulation. The legal situation of crypto securities must be clarified by adding crypto-assets to the definition of a security laid down in the Securities Markets Act and to the definition of a financial instrument laid down in the Act on Investment Services. 	<p>The EU's MiCA Regulation will also change the definition of crypto-assets nationally.</p> <p>For example: In German legislation, security tokens and other kinds of virtual currencies are separated from each other.</p> <p>In Switzerland, the definition of crypto-assets has three categories.</p>

The legal situation of crypto-assets that resemble securities is also unclear in Finland's virtual currency and securities legislation. Digital tokens are currently

regarded mainly as virtual currencies in the regulation, but they can also be financial instruments or securities by nature.

However, the legal situation in terms of the classification is not clear, which leads to a situation in which digital tokens with properties and purposes of use resembling traditional securities are regarded as virtual currencies and their issuance is therefore subject to the virtual currency regulation.

In the case of a security token resembling a housing company share or a governance token entitling to a right to vote in the DAO, the requirements of the Act on Virtual Currency Providers and registration obligation for virtual currency providers must also be applied in their issuances, which puts such security token providers in a position that differs from the traditional share issuance. This situation is inappropriate for token issuance, which means that development activities are challenging in Finland.

The definition of virtual assets and crypto-assets differ from Member State to Member State

There is no single established definition for crypto-assets or virtual assets in the EU. Therefore, the definition of virtual assets and crypto-assets differ from Member State to Member State. Some Member States recognise the differences between virtual asset manifestations at the regulation level, for

Digital token

A token that describes the thing exchanged between parties in a blockchain.

A digital token can represent value (e.g. cryptocurrency), right of possession (e.g. non-fungible token — NFT) or investments (e.g. shares or decision-making power in an organisation). Resembles real-life tokens in terms of mechanism.

example, by distinguishing crypto securities as their own asset type that is separate from virtual currencies. Digital tokens may also be divided into different categories on the basis of their more detailed properties and purposes of use. At the EU level, it remains also unclear as to whether crypto-assets can meet the definition of a security. The EU's securities regulation does not directly define the concepts of virtual assets and crypto-assets.

Of the EU Member States, for example, Germany has placed crypto securities as their own category separate from the crypto-assets resembling currencies. In 2021, Germany enacted an act on electronic securities (Gesetz zur Einführung von elektronischen Wertpapieren, [eWpG](#)). The Act is part of the more extensive blockchain strategy of the federal government, and it aims to bring the national securities regulation in line with digital development. The regulation enables the issuance of bearer bonds, housing loans and certain types of fund units in a fully electronic format. The regulation is likely to be extended to also cover the issuance of shares in an electronic format in the future.

Switzerland concluded that the existing regulation already largely covers the adoption of DLT and blockchain-based forms of assets as well as crypto securities. Nevertheless, certain shortcomings were detected from the financing and insolvency regulation perspective. This is why Switzerland passed a special [DLT Act](#) (Bundesrat das Bundesgesetz zur Anpassung des Bundesrechts an Entwicklungen der Technik verteilter elektronischer Register, DLT-Gesetz) in August 2021. In the Act, a distinction is made between DLT securities (DLT-Effekten) and other forms of assets under separate concepts. The change enables the tokenisation of financial instruments, such as promissory notes and shares, as well as their issuance using DLT technology.

In Switzerland, the assessment of the properties and purposes of use of

What is a security?

There are different definitions of a security, and the differences are more pronounced between different countries and legal systems. In Finnish legislation, a security refers a valuable document that is convertible and issued or meant to be issued to the public together with several other securities with similar rights. The definition shows that the concept of a security is very broad and open to interpretation and, in practice, a wide range of things, rights or agreements can meet the definition of a security. Examples of securities could be housing company shares or promissory notes.

A financial instrument refers to the instrument or agreement which the issuer uses to acquire assets. This means that securities also belong conceptually under the definition of a financial instrument.

Virtual currencies and cryptocurrencies are not regarded as securities under the Finnish Securities Markets Act (746/2012) or as financial instruments under the Act on Investment Services (747/2012), but they are payment currencies by nature which are comparable to traditional currencies. This is different in Germany where cryptocurrencies are recognised as securities in the legislation. This is significant, as the issuance of cryptocurrencies and securities are subject to different laws and obligations.

crypto-assets utilises the Swiss Financial Market Supervisory Authority FINMA's categorisation of tokens: payment tokens, utility tokens and asset tokens. Of these categories, the digital payment tokens, such as cryptocurrencies, and the utility tokens, such as governance tokens used by DAOs or in-game currencies are not, as a rule, included under Switzerland's security definition, unless their properties or purposes of use especially support this interpretation.

The interpretation differences related to the definition of crypto securities and crypto-assets continue to exist between the EU Member States for the time being. National measures must be taken in good time so that the legal situation can be clarified and issuance of different crypto-assets enabled in Finland.

The national virtual currency regulation must be proactively made compatible with the MiCA Regulation

Finland should follow the model of international peer countries and take into account the diverse manifestations of virtual assets in the regulation and its application. The best way would be to rely on the MiCA Regulation proposal, as the Regulation will nevertheless be directly applicable in Finland.

It is especially important to note that the Act on Virtual Currency Providers valid in Finland is stricter in terms of the issuance of certain types of crypto-assets than the MiCA Regulation. Examples of this are the digital utility tokens, in other words, digital tokens that only have a purpose of use within a certain closed use environment. Issuance of such utility tokens does not seem to be subject to prior authorisation from the authorities or registration process in the

MiCA Regulation as required by the already valid Act on Virtual Currency Providers.

If Finland's national legislation will not be compatible with the MiCA Regulation at the beginning of the transitional period, this will lead to a situation in which Finland's national legislation is stricter than the valid regulation (although the regulation is not directly applicable during the transitional period). This is contrary to the goals of the MiCA Regulation's transitional period, which aims to enable the market operators who are subject to the Regulation to prepare themselves for the requirements of the Regulation. In a situation in which the valid national legislation is stricter than the future EU regulation, it is practically impossible to prepare for the requirements or at least challenging. Therefore, amending the national legislation in Finland in a smooth and agile manner to be compatible with the MiCA Regulation is an especially important goal.

If amending the Act on Virtual Currency Providers is not regarded as appropriate and the Act will no longer stay valid after the MiCA Regulation has entered into force, the national regulation framework should be made compatible with the MiCA Regulation at the right time. This would mean at least technical amendments to the regulation. The authorities should also take action well in advance.

It should be considered whether regulation under the MiCA Regulation could be enacted already before the Regulation enters into force. This is because the MiCA Regulation grants the crypto-asset service providers a passport authorisation, in other words, an authorisation to operate in the entire EU area based on an authorisation received in one Member State. This encourages operators to obtain an authorisation fulfilling the requirements of the MiCA Regulation from the first Member State where this is possible to enable operations in the entire EU area. Therefore, it is important that the regulatory framework in Finland is compatible with the MiCA Regulation immediately when the regulation enters into

force or even before it, so that the operators will have operational reliability when they consider their location.

The legal situation of crypto securities must be clarified through regulation amendments

Issues concerning the financial instrument and security nature of crypto-assets are still unclear in Finland, and different crypto-assets are too easily labelled as falling under the virtual currency definition. As a result, the issuance and provision of such digital tokens must comply with the virtual currency regulation and its burdensome requirements.

As long as the EU legislator takes no action on harmonising the definition of a security, this issue will remain under national discretion. As neither the Finnish Securities Markets Act nor other securities regulation provide unequivocal answers to these questions, the significance of the interpretations of the authorities is underscored when evaluating whether crypto-assets belong under the cryptocurrency or crypto security definition. Different authorities interpret the issue independently, which results in interpretations that are hard to predict and the undermining of the legal security.

Therefore, Finland should comply with the model of active EU states and recognise virtual or crypto-based financial instruments and securities as an asset type separate from virtual currencies at the regulation level. This should be implemented by adding crypto-assets to the definition of a security laid down in section 2, subsection 1 of the Securities Markets Act (746/2012) and to the definition of a financial instrument laid down in section 1, subsection 14 of the Act on Investment Services (747/2012). The EU's DLT pilot regulation's definition of a transferable security could serve as an example for drafting the definition.

Recommendation 2. Decentralised autonomous organisations (DAO) must be nationally regulated on the basis of the Co-operatives Act

It is estimated that there are currently about 4,000 active decentralised autonomous organisations in the world, which are managing a huge amount of assets. There are many uncertainties concerning DAOs in Finland, such as the open questions about the legal personality of DAOs and

organising the liabilities. This phenomenon is still rather unknown and poorly understood in Finland, and no precise national definition has been prepared. As far as is known, no DAOs are located in Finland, and there are thus no taxable DAO operations in Finland.

Observations	Recommendations	Examples of peer countries
DAO is a new form of organisation around the world. In Finland, questions about their legal personality and responsibilities have arisen. The operators feel that voluntary registration of DAOs is a positive thing.	DAOs must be regulated nationally by amending the Co-operatives Act as necessary and, thereby, enabling voluntary registration of DAOs in Finland.	DAOs have already been regulated with existing regulation models (Vermont, Wyoming, Tennessee) or with a completely new DAO-specific regulation (DAO Model Law prepared by the COALA working group).

The legal issues concerning DAOs are challenging, as a crucial feature of DAOs' governance structure is decentralisation – in decision-making as well as in the geographic location of the members. This is materially different from the traditional legal organisation model, and the traditional regulation models are therefore not applicable to DAOs.

According to the interviews, the Web 3.0 operators have a mainly positive attitude towards enabling the registration of DAOs in Finland. Even though the regulation is seen partly as challenging and even inappropriate for DAOs built on public blockchains, it was also perceived that legally operating DAOs would be ready to voluntarily register themselves to obtain the benefits which the legal personality would bring.

DAOs have already triggered new international regulations. The regulation trends can be roughly divided into two categories. Some countries aim to produce fully new regulations aimed particularly at Web 3.0

technology, whereas some aim to extend their existing regulation models to cover the Web 3.0 phenomenon. The latter approach may prove to be challenging, as technological advancements could not always have been predicted when enacting laws. It is also not that simple to create completely new regulations.

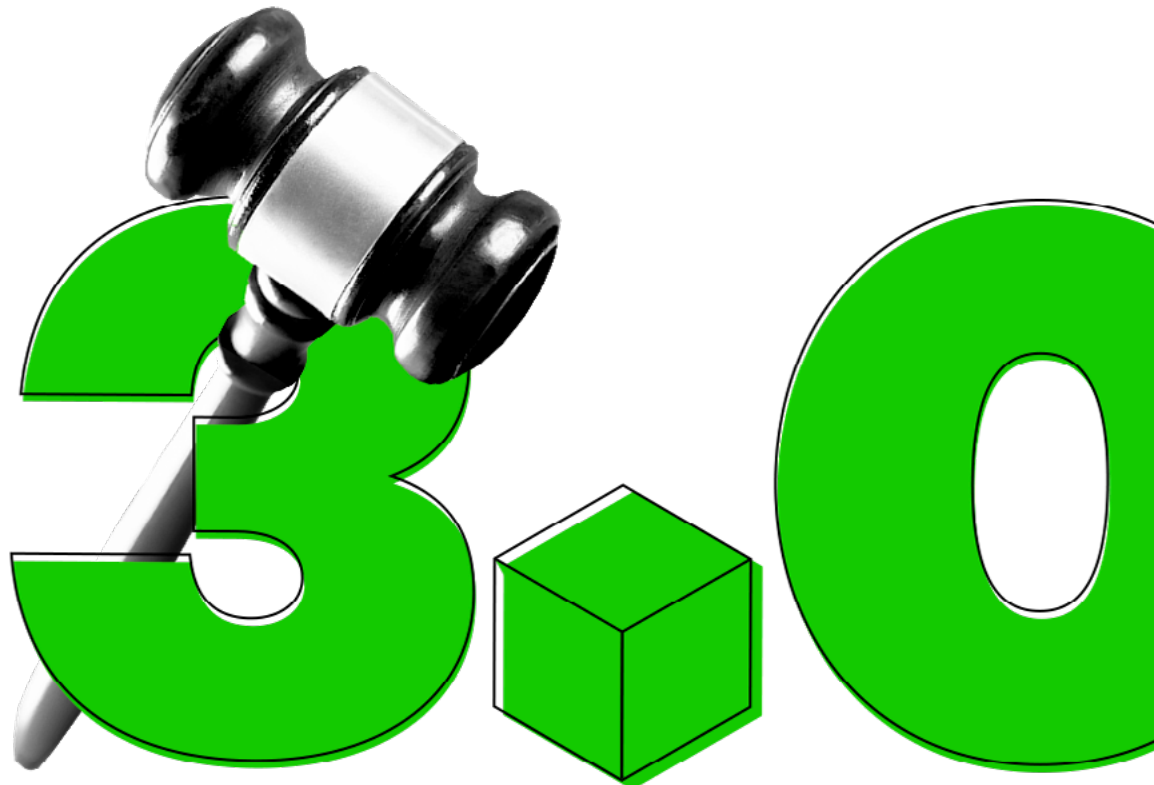
In the United States, DAO regulation has been enforced at the state level in Vermont, Wyoming and Tennessee, among other places. In these models, DAOs have been made subject to the existing organisation model rules. In other words, DAOs in the regulation have been equated with limited liability companies, i.e. companies in which the members have limited liability for the company's operations. The initiative has been praised, but received also some criticism, as they are perceived to bring DAOs more liabilities without any significant additional benefits. Some people feel that the handling of DAOs by the existing models

does not pay enough attention to their unique, new form of organisation.

There have also been some new DAO regulation initiatives in international law, such as the Model Law for DAOs of the international COALA (the Coalition of Automated Legal Applications) working group. The Model Law represents unique DAO-specific regulation that is not based on existing organisation or governance models.

Enabling the registration of DAOs, which would boost Finland's competitiveness as an operating area for DAOs, seems to be an initiative worth considering. At the same time, registration could solve harmful phenomena associated with DAOs, such as authentication problems, money laundering and terrorist financing.

Solving legal personality and liability issues would require DAOs to be subject to national legislation. In this, regulation by the Co-operatives Act (421/2013) seems to be the best option, as very different kinds of activities can be included under cooperative operations due to the flexibility of the regulation. Then the regulatory measures would include the additions to the Co-operatives Act, based on which cooperative operations could be carried out in the form of DAOs – with the DLT and blockchain technology. However, when adapting the legislation, the special features of DAO operations must be considered, and the DAO operations should not be violently forced inside the traditional regulation matrix.



Recommendation 3. The safety of smart contracts must be ensured through guidance

The aim of the decentralised systems based on smart contracts was to reduce problems related to centralised systems, but, at the same time, the vulnerabilities of smart contracts have led to abuses and data security breaches. Some of the problems have been focused on centralised operators, such

as marketplaces, but decentralised operators, such as DAOs, have not been able to escape misuse either. Smart contracts have raised concerns regarding their vulnerabilities, ensuring the quality of the code and understanding the content.

Observations	Recommendations	Examples of peer countries
<p>The security of smart contracts and related misuses and vulnerabilities have raised increasing concerns.</p> <p>Care must be taken that technology regulation does not slow down the development and culture of experimentation.</p>	<p>The safety of smart contracts must be ensured with national guidance in order to safeguard the quality and security of the smart contract code.</p>	<p>The European legislator seems to have become somewhat active in smart contract regulation (Data Act, article 30).</p>

Ensuring the security of smart contracts is an essential issue in consumer protection and in ensuring stability in the financial markets. It also creates general trust in smart contracts and enables the spread of the technology. Problems are addressed, for example, by developing the quality of the smart contract code. For example, in [the Ethereum ecosystem](#), the aim is to develop industry-specific standards so that the users can ensure that the smart contract has passed professional security verification. The Web 3.0 industry's active engagement can reduce the regulation need related to smart contracts.

The international regulatory framework of smart contracts is still ambiguous. However, the need for regulation has been identified at the EU level, and, for example, the [EU Blockchain Observatory & Forum](#) established at the initiative of the European Commission has underlined the need for harmonised EU legislation concerning smart contracts. At the same time, it should be

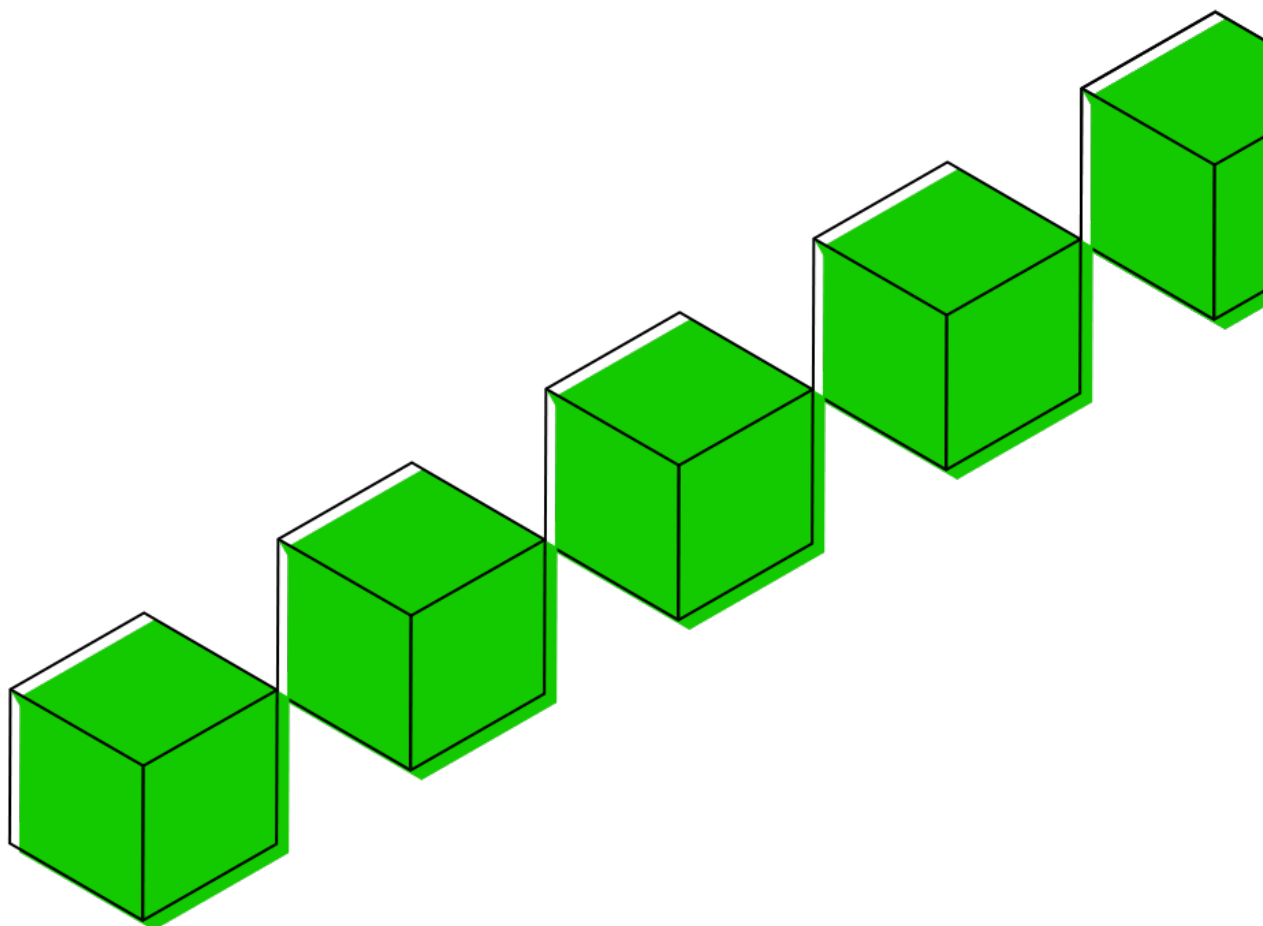
remembered that the technology is not very mature yet, which means that the time may not yet be ripe for regulation initiatives.

However, the EU legislator has become more active in issues related to smart contract regulation. In February 2022, the European Commission published the Data Act, which includes regulation on smart contracts. The [Data Act](#) contains a rather general set of "requirements" that the vendor of an application using smart contracts must comply with in applications related to data sharing. They concern smart contracts' operational reliability, the possibility of termination and interruption, data archiving and continuity and access control. The regulation also grants authorisation to establish European standardisation organisations to draft harmonised standards concerning the requirements. The regulation proposal also contains other kinds of smart contract regulation, such as requirements concerning the interoperability of smart contracts.

Far-reaching conclusions about the EU legislator's aims to harmonise smart contract regulation should not be drawn from the initiative. This development nevertheless proves that views on the security of smart contracts have been considered at the EU level and more regulation can be expected in the future.

The security of smart contracts is a prerequisite for the spread of the technology, as well as for consumer and investor protection and ensuring stability in the financial markets. However, Finland should not wait

for the EU legislator to act but rather begin more detailed national evaluation work. The best option seems to be to provide guidelines that set the minimum requirements which smart contracts issued in Finland should fulfil at the code level and guidelines on which auditing mechanisms should be used to ensure their security. The national VAHTI requirements audit tool and Katakri auditing tool could serve as an example. However, the national measures should not unnecessarily hamper the development of the industry and experiments with innovation.



Recommendation 4. Clear and predictable taxation of crypto-assets must be ensured

In the interviews, taxation was seen as a challenge that hinders Web 3.0 operations in Finland. It is obvious that countries with a low tax rate attract companies, but taxation could also be made more functional for Web 3.0 companies through different kinds of measures. Clear and predictable taxation

of crypto-assets is in the best interests of companies as well as Finland. Crypto-assets refer to any representation of digital value or right that can be digitally transferred and stored using distributed ledger technology, such as blockchains or other technologies.

Observations	Recommendations	Examples of peer countries
<p>The operators feel that the cryptocurrency taxation is complicated and associated with uncertainty and misunderstandings.</p> <p>The tax authority has already prepared extensive instructions on crypto-asset taxation in Finland, but this information has not always reached the operators.</p>	<ul style="list-style-type: none"> The tax authority's guidance on crypto-assets and their manifestations must reach the companies and operators in the industry. It must be possible to anticipate and reassess tax decisions even before the entry into force of the MiCA Regulation. 	<p>The concept of a crypto-asset is becoming more diversified, for example, due to the MiCA Regulation, which will lead to new taxation issues.</p> <p>Some countries, such as Germany, have distinguished between a crypto security and cryptocurrency, which is also considered in taxation.</p>

Virtual currencies are not a cohesive set of virtual payment instruments, but their properties and purposes of use vary a great deal. Strong rate fluctuations are often associated with altcoins, whereas the purpose of stablecoins is to resemble traditional fiat currencies, such as the euro and dollar, with stable rates. In addition, there are digital tokens that are not at all like payment instruments but may be defined as virtual currencies.

Taxation in the EU is largely left to national discretion, so tax practices concerning crypto-assets vary greatly from one Member State to another. Countries with light taxation, such as Malta and Portugal, have indeed managed to attract Web 3.0 operators.

Although Finland would not like to move toward a more liberal taxation of crypto-assets, increasing understanding of the

variety of different manifestations of crypto-assets is important to ensure sufficiently varied tax treatment. Once the MiCA Regulation enters into force, the concept of crypto-assets will become broader, and it should be considered whether certain types of crypto-assets, such as stablecoins, should be treated differently in taxation.

Increasing understanding of Web 3.0 and different forms of crypto-assets is one measure that can be used to promote the predictability and consistency of taxation interpretations. The tax authority has already prepared extensive instructions on crypto-asset taxation. However, persistent misconceptions and misunderstandings related to taxation are prevalent in the industry. This is the reason why it must be ensured that the guidelines reach the operators and that they are also available to international operators.

Recommendation 5. Enough resources must be allocated to the supervision and guidance of the industry's operators

The interviews highlighted that companies operating in the Web 3.0 industry and especially virtual currency providers feel that cooperation with the Financial Supervisory Authority is challenging.

According to the companies in the industry, interpretations and advice are not provided fast enough. The problems are caused by insufficient financing and the fact that Web 3.0 is a rather new phenomenon.

Observations	Recommendations	Examples of peer countries
<p>Ambiguities arising from legislation increase the need for the Financial Supervisory Authority's interpretations.</p> <p>The funding of the Financial Supervisory Authority is not sufficient to ensure the required resources for providing interpretations to the virtual currency providers and carrying out high-quality supervision.</p>	<p>The Financial Supervisory Authority must have enough resources to supervise the companies and operators in the industry.</p> <p>Operators in the industry must receive adequate guidance.</p>	<p>A functional line of communications, available guidance and a smooth handling process of the supervisory authority have proven to be important factors when competing for international Web 3.0 operators.</p> <p>On the other hand, an overly permissive attitude will also lead to problems and unintended consequences (e.g. Estonia and Lithuania).</p>

A functional co-operative relationship between the supervising authority and supervised companies is seen as a benefit when Web 3.0 companies decide on their location. Estonia was among the first EU countries to welcome crypto-asset providers to their country, which led to a situation in which, in 2021, 253 actively registered virtual currency providers operated in Estonia – which is nearly half of all the providers in the world. Similarly, the FCIS supervisory authority in Lithuania has been cooperative and supportive towards crypto-asset service providers located in the country.

The activity is partly explained by the differing roles of the supervisory authorities and different financing models. In Finland, supervisory resources are collected through supervisory fees. Nonetheless, an approach that is too favourable to crypto-asset operations has also caused problems. In Estonia and Lithuania, money laundering has

become more common, which in Estonia has led to tightening regulations, cancellation of registrations and virtual currency providers' exit from the country. Like Estonia, Lithuania has made its regulatory framework and requirements for virtual currency providers stricter. The United Kingdom has expressed its desire to be the leading country of Web 3.0 operations. The Financial Conduct Authority FCA has launched several projects to promote this. It has, for example, established a regulation sandbox, i.e. a testing environment, maintained by FCA, [Cryptosprint project](#), and an engagement group operating with the Web 3.0 industry. Nevertheless, the United Kingdom has been criticised for the congestion in the authorisation system caused by the lack of resources.

The examples of peer countries show that a good and functional relationship with the supervisory authority attracts Web 3.0

operators and boosts development measures. Sufficient resourcing of the authorities must nevertheless be secured so that new supervised companies will not jam operations.

The most functional way for authorities to promote Web 3.0 operations seems to be maintaining an effective, interactive relationship between authorities and Web 3.0 operators, which requires sufficient resourcing and competence.

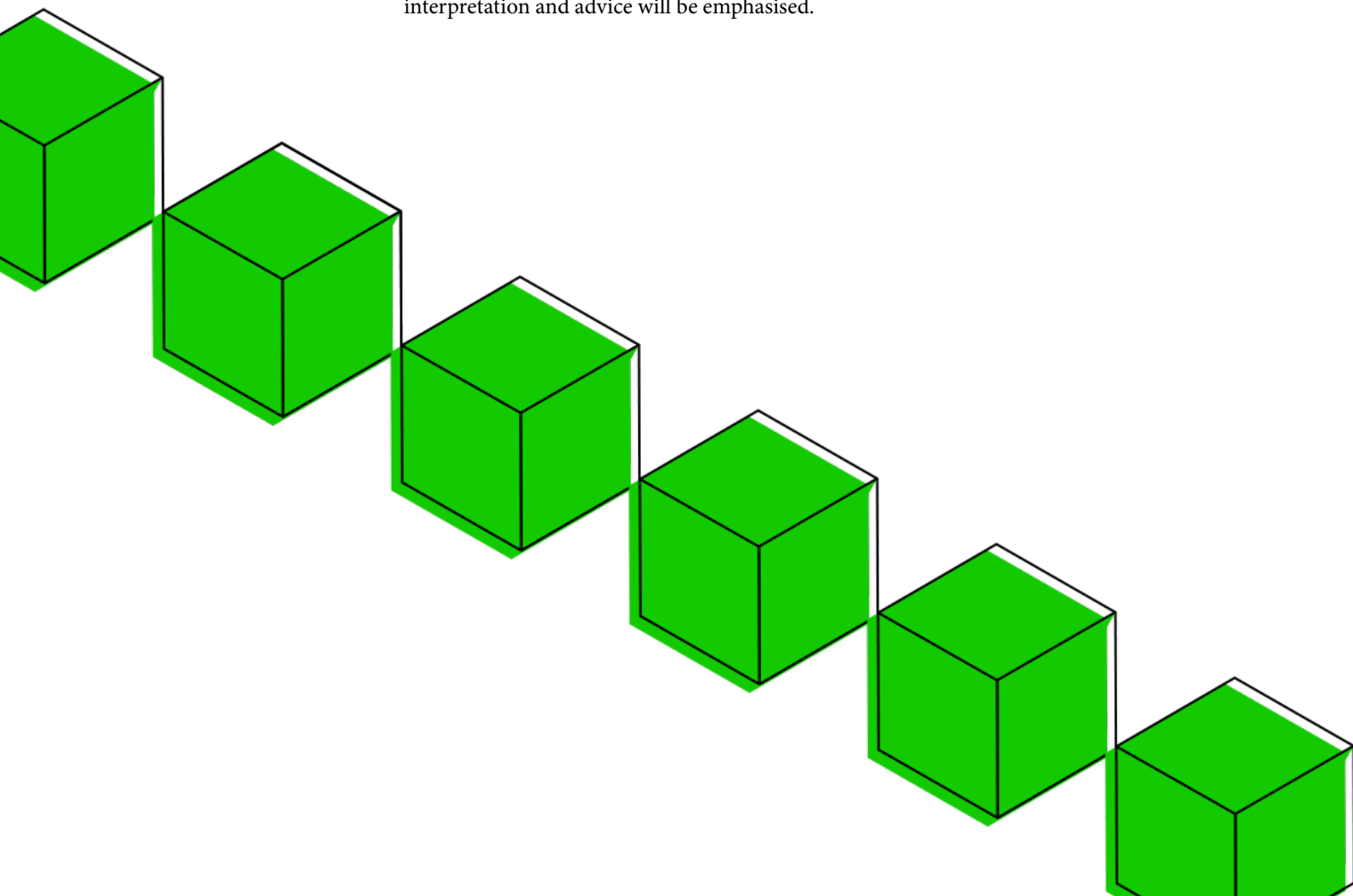
The interviews highlighted concerns about the Financial Supervisory Authority's financing and resources, which are required for high-quality supervision of Web 3.0 operators. A special concern raised was whether the Financial Supervisory Authority will be capable of allocating enough employees once the number of supervised companies increases due to the MiCA Regulation.

After all, the statutory task of the Financial Supervisory Authority is to act as the supervisory authority, not as the company advisor and consultant. But since the legal situation of crypto securities is unclear at the regulation level, the role of the Financial Supervisory Authority in providing interpretation and advice will be emphasised.

Clarifying the legal situation through regulatory measures would solve the problems related to this setting and save the Financial Supervisory Authority's resources, after which they could be used for supervision activities.

The financing of the Financial Supervisory Authority is regulated by the Act on the Financial Supervisory Authority (878/2008), in accordance which the supervised companies are charged with procession and supervision fees. These fees are mainly used to finance the operations of the Financial Supervisory Authority. In addition, the Bank of Finland finances the operation of the Financial Supervisory Authority with a 5% contribution.

The virtual asset providers supervised by the Financial Supervisory Authority consist mainly of startup companies and SMEs, which means that the fees they pay are small. It is necessary to assess the sufficiency of the Financial Supervisory Authority's financing to ensure high-quality supervision of virtual asset providers also in the future when the MiCA Regulation enters into force.



Recommendation 6. Low-threshold innovation activities must be promoted through regulatory sandboxes

The aim of the EU is to create innovative Web 3.0 activities in the EU. Different public initiatives, such as the joint initiative of Member States, Norway and Liechtenstein [European Blockchain Partnership \(EBP\)](#) and the [DLT pilot regulation](#) are excellent examples of this. Many countries have also tried to increase their competitiveness through national initiatives

by establishing financial technology sandboxes, i.e. testing environments. However, problems may arise from establishing sandboxes due to increasing EU regulations and mandatory money laundering obligations. In international comparisons, it has been noted that most of such sandboxes were established outside the EU.

Observations	Recommendations	Examples of peer countries
Virtual currency providers are expected to register themselves at too early a stage, and the obligations caused by this are too heavy especially for small startup companies.	A sandbox, i.e. a testing environment for financial technology, strengthening the co-operation between the authorities and companies must be established. This will enable Web 3.0 experiments and innovations at the early stage of the company's lifecycle.	The EU's MiCA Regulation will ease some of the licence prerequisites. Innovation operations in the EU are currently promoted, for example, through the DLT pilot and EBP co-operation. For example, in the United Kingdom, experimental and innovation activities in the financial markets are enabled by a sandbox maintained by the supervisory authority.

In the interviews, the Web 3.0 operators pointed out that the restricted operating environment in Finland reduces low-threshold innovation activities and, thereby, the creation of innovations in Finland. It is particularly problematic that virtual currency providers must register at a very early stage, and the obligations caused by this are heavy, especially for small startup companies. As a result, only eight virtual currency providers are currently registered in Finland. Hence, it is important for Finland to assess how low-threshold innovation activities can be promoted within the scope of the EU legislation and initiatives and, on the other hand, through national regulation and authority measures.

Web 3.0 operations are strongly linked to experiments and innovation. The International Bank for Reconstruction and Development estimated in 2020 that there

were up to 73 different financial technology sandboxes in 56 different countries in November 2020. When certain conditions are met, the operators can carry out their operations within such sandboxes without the obligations that were felt to be too heavy a burden on innovation.

At the same time, it must be taken into account that Finland must ensure the fulfilment of money laundering obligations as well as take EU regulation into account in all its operations. Development activities on regulated markets are often seen as demanding when obligations related to the prevention of money laundering and customer authentication, among others, become applicable to operators often at a very early stage.

Like many other Member States, Finland does not have a legal tradition of sandbox operations. This may be the reason why most of the sandboxes are located outside the EU.

However, the situation seems to be changing at the EU level, and an increasing number of EU-driven sandbox initiatives have been launched.

Switzerland has developed a new kind of FinTech licence for financial technology companies, which deviates from the traditional licences concerning financial institutions. The FinTech licence was adopted in January 2019 through the revision of the Swiss Federal Banking Act (Bundesgesetz über die Banken und Sparkassen, BankG). Based on the revision, the sandbox operators can, within certain limits, control and invest public funds under the scope of the FinTech licence, if no interest is paid on the assets and the investors are informed that the operations are not supervised by the authorities and the assets are not secured by guarantees. These operations enable experiments and development activities without the operators having to comply with all the requirements set for financial institutions.

A sandbox, i.e. a testing environment for financial technology, strengthening the co-operation between the authorities and companies must be established

Finland should follow the United Kingdom's model in terms of experimenting and establishing a regulated sandbox in Finland to promote the development of decentralised finance services as well as innovation and development activity related to Web 3.0 operations in Finland. As in the United Kingdom, the benefits offered by the sandbox should not be related to deviating from regulation, as it would not be compatible with the money laundering obligations binding on Finland and increasing EU regulation. Instead, in the sandbox, effort should be made to increase co-operation and counselling provided by the authorities and granting reliefs which do not conflict with statutory obligations. A key part could

include the co-operation between the Financial Supervisory Authority and taxation authorities and guidance provided to Web 3.0 operators. This would also solve the key problems which Web 3.0 operators felt were hampering development activities in Finland.

In addition, the creation of a testbed could be considered. When creating a national testbed for the testing of new Web 3.0 innovations, the [Virtual Finland testbed](https://um.fi/developing-a-virtual-finland-platform) (<https://um.fi/developing-a-virtual-finland-platform>) and [the Reference architecture for decentralised web developed by Sitra](#) can be utilised.

Regulatory sandbox

A regulatory sandbox is a combination of a guidance service and increased support in licence issues that are related to financial sector innovations.

For example, the Financial Conduct Authority FCA in the United Kingdom adopted a sandbox for innovation activities on the financial markets in 2016. The sandbox allows the development of new kinds of technology and application forms which will enter the market at a later stage. To join the sandbox, the operator must submit an application to the FCA, which will approve the operator when certain prerequisites are met. Joining the sandbox does not release the operator from legal obligations, but the operators can request an exception to the application of a specified rule or ask for a favourable interpretation for an unclear interpretation issue. At the same time, an operator that has joined the sandbox will receive an open line of communication with the supervisory authorities and representatives of the legislator. This provides significant benefits for the companies, as receiving interpretation from the authorities may be difficult if the operations are congested. FCA also supports the operator when it has left the sandbox by assisting it in obtaining the necessary licences, for example.

Recommendation +1. Finland's Web 3.0 guidelines

Finland is well equipped to seize the opportunities provided by Web 3.0. The business and innovation opportunities provided by Web 3.0 are dependent on Finland's

approach and attitude. If Finland wishes to ensure its competitiveness in the Web 3.0 markets, it must immediately seize the opportunities it provides.

Observations/need	Recommendations
<p>Finland has good capacities to grasp the business opportunities provided by Web 3.0.</p> <p>In Finland, knowledge and understanding of web 3.0 is concentrated in a small group of professionals.</p>	<p>A. Paying attention to Web 3.0 in the national digital compass implementation</p> <p>B. Establishing a Web 3.0 co-operation network</p> <p>C. Increasing Web 3.0 skills comprehensively at all sectors of society</p> <p>D. Ensuring public support for Web 3.0 companies through funding, co-operation and guidance, for example</p> <p>E. Boosting tokenisation development, i.e. the spread of digital asset forms, through national and EU pilot projects</p>

Paying attention to Web 3.0 in the national digital compass implementation

Estonia, Latvia, Lithuania and Liechtenstein have proven that it is possible to lure Web 3.0 operations to smaller countries with an active and open attitude.

Many countries, such as Germany and Ireland, have supported Web 3.0 development by drafting public guidelines and strategies which provide clear targets and steps for boosting national development.

Finland needs a clear plan for increasing the understanding of the possibilities provided by Web 3.0 operations in terms of national competitiveness and well-being. One significant step would be to prepare an action plan for accelerating the national Web 3.0 ecosystem, which could be taken into account as part of the national digital compass implementation using the existing structures, such as digitisation, data economy and the ministerial working group for public administration development as well as

the Coordination group for digitalisation. Linking Web 3.0 to the digital compass would ensure that the phenomenon is comprehensively considered in the development work related to competence, digitisation of companies, public services and infrastructure. This would be a sign of the importance of the matter and Finland's supportive attitude towards the Web 3.0 phenomenon.

Establishing a Web 3.0 co-operation network

Web 3.0 operations are strongly based on experiments, and the pace of development is rapid. It is hard for the public sector operators to keep up with Web 3.0 development without a line of communication with the industry operators. The promotion of active dialogue between the public sector and Web 3.0 operators improves the public administration's understanding of the phenomenon and communicates to external

parties that Finland is willing to co-operate with developers. These measures will enhance Finland's international competitiveness when attracting professionals and companies.

A functional line of communications has attracted Web 3.0 operators to countries such as the United Kingdom and Singapore. However, this has also led to some practical problems if the resourcing of the authorities has not been sufficient. An active dialogue ties up resources, which is the reason why the tasks should not be vested in one single authority or administrative sector.

It is recommended that a special Web 3.0 co-operation network promoting cross-sectoral discussion with operators from public administration, Web 3.0 companies and professionals be established. The co-operation network can utilise the existing Web 3.0 networks of companies and authorities. The Web 3.0 co-operation network would act as a platform for discussing the opportunities and threats related to this phenomenon. By promoting dialogue, Web 3.0 operators would get an opportunity to present their views and concerns to the authorities in a timely manner without an additional bureaucratic burden. The authorities, in turn, would get a real-time view of the Finnish Web 3.0 industry, which would improve their understanding of the phenomenon and help them react to problems at the right time. Simultaneously, this could contribute to a better understanding of how the public sector could benefit from Web 3.0 solutions.

Increasing Web 3.0 skills comprehensively in all sectors of society

The interviews revealed that the common understanding of Web 3.0 in Finland is at a rather low level, but the operators in the sector are willing to learn and develop. It is important that the competence and understanding of Web 3.0 be increased.

Increasing understanding of Web 3.0 is also important in the public sector. This would ensure that the public sector can realise the potential of Web 3.0 technology and identify the use cases in which the adoption of the new technology would create the most benefits. A sufficient understanding of the Web 3.0 phenomenon and technology is also a prerequisite for high-quality operations of the authorities. There is an active group of Web 3.0 professionals in public administration, but knowledge should be increased more evenly. The public sector could set an example by using Web 3.0 solutions with an open mind in organising and providing services.

It is important to make sure that Finland has the Web 3.0 competence required in the future so that Finland can remain at the forefront of technological development. Understanding can be increased through training and projects which are based on co-operation between different administrative sectors. This would ensure that the different administrative sectors in Finland are at the same level in terms of technological development and would prevent differentiation. This would also allow the sharing of views and knowledge and promote consistency of the interpretations of the authorities.

Based on the observations collected for the survey, blockchain technology is a popular subject in Finnish theses. In the education sector, initiatives such as the EU-funded joint project of the University of Oulu, University of Lapland, University of Vaasa and Kajaani University of Applied Sciences, Powered by Blockchain, have been launched. On 13 February, this project published a book about blockchains and blockchain applications from the perspective of legal regulation. It mainly focuses on EU-level regulation and the legal situation in Finland. The content of the book addresses the following topics: virtual currencies, smart contracts, tokens, data protection legislation and intellectual property rights. However, Web 3.0 has not found its way to the offering

of educational institutions on a wider scale. Training and education in Web 3.0 has been accelerated in several other EU Member States. Finland should keep up with this development by introducing Web 3.0 more extensively as part of continuous learning.

Ensuring public support for Web 3.0 companies through funding, co-operation and guidance

It became evident from the interviews that public support is one of the most significant factors in attracting Web 3.0 operations to Finland. Web 3.0 companies are typically rather small startup companies and SMEs whose operations are dependent on public funding. In Finland, public funding for Web 3.0 operations is offered by Business Finland, the Centre for Economic Development, Transport and the Environment and Finnvera, among others.

In order to be able to respond to the competition, the existing support forms for Web 3.0 operations should be communicated actively to international operators and easily assimilated information should be available. This ensures that Finland is an attractive alternative when international Web 3.0 companies evaluate their location options.

Establishing new support forms concerning Web 3.0 or blockchain technology could be appropriate if it is observed that the existing public funding is not at a sufficient level to answer the international competition.

Innovations can also be promoted through other support forms, such as by advancing the networking of companies, offering low-threshold authority guidance and bringing professionals and companies together.

Supporting the industry will create a foundation for new and innovative Web 3.0 operations. This will increase Finland's import and share of the international Web 3.0 market, create new jobs in Finland and

ensure that operations established here will not move away from Finland.

Boosting tokenisation through national and EU pilot projects

Tokenisation refers to a process in which an item or a thing outside the blockchain is connected to the blockchain by issuing a token concerning it. The benefits of tokenisation are that it facilitates investments in new kinds of targets and divides ownership into smaller units, in other words, digital tokens. The opportunities provided by tokenisation remain unspecified in many cases, but the development has raised much interest in both the private and public sectors. Tokenisation is also regarded as an essential part of the creation of trust while moving towards digital ownership models.

To promote tokenisation development, an open approach to new kinds of technologies and the launch of pilot projects mapping the realistic use cases and benefits of blockchain technology are required.

Finland can promote measures which can speed up the development of tokenisation. An important part of the development is the promotion of low-threshold innovation activities. A wide range of different pilot projects are ongoing in the EU, such as the European Commission's EBSI initiative. From the perspective of the operations of authorities, it would be possible to follow the Singapore model and promote pilots with the supervisory authorities through jointly organised pilot projects or sandboxes. A functional dialogue and co-operation relationship with the authorities are important factors in advancing low-threshold innovation activities.

To enable tokenisation development, it must also be assessed how the existing legislative and theoretical models can be applied to the development of digital ownership.

5 Summary of recommendations

1

National virtual currency regulation must be clarified

- The national virtual currency regulation must be proactively made compatible with the MiCA Regulation.
- The legal situation of crypto securities must be clarified by adding crypto-assets to the definition of a security laid down in the Securities Markets Act and to the definition of a financial instrument laid down in the Act on Investment Services.

2

Decentralised autonomous organisations (DAO) must be nationally regulated on the basis of the Co-operatives Act

- DAOs must be regulated nationally by amending the Co-operatives Act as necessary, and thereby enabling voluntary registration of DAOs in Finland.

3

The safety of smart contracts must be ensured through guidance

- The safety of smart contracts must be ensured with national guidance to safeguard the quality and security of the smart contract code.

4

Clear and predictable taxation of crypto-assets must be ensured

- The tax authority's guidance on crypto-assets and their manifestations must reach the companies and operators in the industry.
- It must be possible to anticipate and reassess tax decisions even before the entry into force of the Markets in Crypto-Assets (MiCA) Regulation.

5

Enough resources must be allocated to the supervision and guidance of the industry's operators

- The Financial Supervisory Authority must have enough resources to supervise the companies and operators in the industry.
- Operators in the industry must receive appropriate guidance.

6

Low-threshold innovation activities must be promoted through regulatory sandboxes

- A financial technology sandbox, i.e. a testing environment, strengthening the co-operation between the authorities and companies must be established. This will enable Web 3.0 experiments and innovations at the early stage of the company's lifecycle.

+1

Web 3.0 guidelines for Finland

- Paying attention to Web 3.0 in the national digital compass implementation
- Establishing a Web 3.0 co-operation network
- Increasing Web 3.0 skills comprehensively in all sectors of society
- Ensuring public support for Web 3.0 companies through funding, co-operation and guidance
- Boosting tokenisation, i.e. the spread of digital asset forms, through national and EU pilot projects

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Appendices

Interviewees

Mikko Ohtamaa – Trading Strategy

Ilkka Kivimäki – Maki.vc

Thomas Brand – Coinmotion

Elias Kajander – Coinmotion

Jani Ultamo – Coinmotion

Juuso Haavisto – University of Oxford

Vili Lehdonvirta – University of Oxford

Youssef Zad – Startup Foundation

Ville Runola – Northcrypto

Touko Aroheikki

Juhana Harju – NordXE

Tommi Joentakanen – Iris Protocol


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