Recommendation of the Council on Blockchain and Other Distributed Ledger Technologies

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BETTER POLICIES FOR BETTER LIVES

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Background Information

The Recommendation on Blockchain and Other Distributed Ledger Technologies (DLT) was adopted by the OECD Council at Ministerial level on 10 June 2022 on the proposal of the Committee on Financial Markets (hereafter "CMF"). The Recommendation is addressed to governments of Adherents but it also provides high-level, cross-sectoral guidance to other actors involved in the development and use of Blockchain technology, so that innovation and adoption of these technologies progress responsibly and in line with key principles of market integrity, the rule of law, sustainability and inclusion.

The need for a standard on blockchain and DLT

The OECD has long monitored developments in blockchain and DLT, and a substantial examination of the policy implications and impacts of these technologies was launched over 2019-20 as part of the OECD Going Digital project's focus on frontier technologies. Over that period, the OECD produced 15 analytical reports on blockchain from 11 of its technical committees on a cross-cutting range of policy areas as varied as taxation, financial markets, trade, corporate governance, competition, health and education.

This body of work revealed both positive and negative implications in the technology's use and development which intersect directly with government priorities. While this work underlined the positive potential of blockchain technology to promote higher productivity, foster trust and confidence in institutions, and create highly-skilled jobs, it also identified a number of specific features that give rise to particular challenges and risks. Key among these are its often highly distributed and decentralised governance, and the generally cross-border nature of networks and their activities, which make compliance and enforcement challenging and imply the need for a level of coordination between countries to manage such issues. These impacts have already manifested in the financial sector, where blockchain use is relatively advanced and widespread, and have demonstrated the technology's ability to enable innovation, but also its potential for both deliberate misuse and negative unintended consequences.

Previous OECD standards, notably the *Recommendation on Artificial Intelligence* [OECD/LEGAL/0449], have emphasised the value of a proactive, consistent and evidence-based approach to the governance of emerging technologies, and provided guidance to achieve this in a way that ensures alignment with the shared values of OECD Members. Considering the multitude of benefits and risks identified in the OECD's work, a standard on blockchain and other DLTs makes a significant contribution in support of national policy responses and international policy cohesion as these technologies develop.

Process for developing the instrument

The principles contained in the Recommendation are drawn from the collective findings of the research and analysis on blockchain carried out by the OECD, as well as a substantial process of engagement with other experts and stakeholders.

The Blockchain Expert Policy Advisory Board, a multi-stakeholder and multi-disciplinary group of over 100 experts drawn from more than 50 jurisdictions established by the CMF, met five times in 2019 to discuss and provide comments on principles for blockchain innovation and adoption. The Recommendation's section directed to all blockchain actors was put to a public consultation during July and August 2021, which yielded responses from technology companies, financial institutions, industry organisations, governments, academics, and trade union groups.

National representatives participating in the CMF and Committee on Digital Economy Policy (hereafter "CDEP") provided formal feedback and guidance as the Recommendation developed, and 15 other OECD technical committees or their subsidiary bodies were also invited to provide comments.

Scope of the instrument

The Recommendation is primarily addressed to governments but it also provides guidance for other actors in the blockchain ecosystem, such as the industry, academia, and civil society. With the increase in use and rapid development of the technology and its applications, the Recommendation provides a clear and coherent policy framework for responsible blockchain innovation and adoption to prevent and mitigate risks, while preserving incentives to innovate, collaborate and compete. It also articulates and conveys the expectations of Adherents to non-government actors on issues of business conduct and responsibilities regarding market integrity. While international standards have thus far focussed on financial market issues, this Recommendation recognises the wider impacts of and uses for the technology, and is the first cross-sectoral international policy standard for blockchain.

The Recommendation addresses six key issues relevant to all blockchain actors:

1. Compliance and Coherence;
2. Governance, Transparency, and Accountability;
3. Interoperability;
4. Digital Security and Privacy;
5. Education and Skills Development; and
6. Environmental impact.

The Recommendation also contains specific policy recommendations for governments – when they are establishing or implementing policy measures related to Blockchain innovation and adoption, taking into account the importance of technology neutrality, and consistent with the provisions on the six issues above – in five areas:

1. Develop co-ordinated policy approaches concerning Blockchain;
2. Foster investment in Blockchain research and development;
3. Strive to build human capacity on Blockchain;
4. Support an enabling policy environment for Blockchain; and
5. Co-operate internationally on Blockchain.

Next steps

The Recommendation instructs the CMF, in co-operation with the CDEP and in consultation with other relevant committees, to serve as fora for exchanging information on Blockchain policy and experiences with the implementation of this Recommendation, and fostering multi-stakeholder and interdisciplinary dialogue on innovation and adoption of Blockchain. To this end, a series of events are foreseen, in particular the September 2022 OECD Global Blockchain Policy Forum, with a focus on disseminating the Recommendation and exploring key considerations in its implementation.

Implementation guidance to accompany the Recommendation will be developed, and the OECD has opened engagement with countries and policy institutions looking to work with the Organisation to use the Recommendation as a basis for policy development and reform.

The CMF will report to the Council on the implementation, dissemination, and continued relevance of the Recommendation in 2027.

For further information please consult:
https://www.oecd.org/daf/blockchain/ and https://www.oecd.org/finance/oecd-blockchain-policy-forum.htm.
Contact information: blockchain@oecd.org.

THE COUNCIL,

HAVING REGARD to Article 5 b) of the Convention on the Organisation for Economic Co-operation and Development of 14 December 1960;

HAVING REGARD to other standards developed by the OECD in the areas of consumer protection, data governance, digital security risk, financial education, innovation, labour, regulatory policy, and responsible business conduct;

HAVING REGARD to the Sustainable Development Goals set out in the 2030 Agenda for Sustainable Development adopted by the United Nations General Assembly (A/RES/70/1), the 1948 Universal Declaration of Human Rights, the 2011 United Nations Guiding Principles on Business and Human Rights, and the 2019 International Labour Organisation's Centenary Declaration on the Future of Work, as well as the work of and standards developed by the International Organization for Standardization's Technical Committee 307 on Blockchain and Distributed Ledger Technologies; the International Telecommunication Union's Telecommunication Standardization Focus Groups on Application of Distributed Ledger Technology, and on Digital Currency; and the European Telecommunications Standards Institute's Industry Specification Group for Permissioned Distributed Ledgers; and by the World Wide Web Consortium;

CONSIDERING that Blockchain and other distributed ledger technologies (DLT) may facilitate traceable record-keeping and the transfer of value and data, as well as innovative tools such as "smart contracts" and potential use cases, for example asset tokenisation, that may stand-alone or form a component of broader technology solutions across the private and public sectors in areas as diverse as digital identity, financial services, public services, and supply chains;

CONSIDERING that Blockchain may have the potential to contribute to innovation, productivity, resilience, transparency, due diligence in supply chains, integrity of data, competition, multi-stakeholder collaboration, accountability and to ensuring a level playing field, and may thereby foster trust and confidence in institutions and promote responsible business conduct and the Sustainable Development Goals;

ACKNOWLEDGING that Blockchain carries certain limitations and risks, some of which are specific to Blockchain while others are relevant to digital technologies more broadly, for example risks relating to privacy and security, custody of access credentials, and cryptography vulnerabilities;

RECOGNISING that Blockchain verifiable digital identity is a component of many Blockchain applications, and at the same time, that Blockchain may itself be an enabler of verifiable digital identity;

ACKNOWLEDGING that national and international policy, legal, and regulatory frameworks apply to Blockchain and its applications and that Blockchain and its applications will need to be periodically assessed to ensure appropriateness, particularly with respect to Blockchains operating across borders;

ACKNOWLEDGING the importance of technology neutrality both in terms of policy, legal, and regulatory, frameworks, as well as when identifying the most appropriate and suitable technology and applications to meet the needs and requirements of a given situation;

RECOGNISING that consulting, engaging and empowering stakeholders is an essential part of fostering public confidence in the appropriate adoption of Blockchain applications;

RECOGNISING that the rapid development and application of Blockchain has created demand across the globe for clear and coherent policy guidance for Blockchain innovation and adoption aiming to prevent and mitigate risks, while preserving incentives to innovate, collaborate and compete, while taking into account regional- and country-specific contexts;

SUPPORTING the sustainable use of Blockchain applications, while identifying and mitigating any negative environmental impacts;

RECOGNISING that a values-based approach to responsible Blockchain innovation and adoption may help encourage innovation, reduce economic, social, gender, and other inequalities, promote quality and safe jobs, foster financial inclusion, investor and consumer protection, support financial system resilience, fair competition and market integrity, empower individuals, and encourage fair transitions and skills development, enhance digital security and data protection, build trust in the digital economy and society, protect natural environments, and encourage efficient energy use, thereby supporting inclusive growth, well-being, transparent and responsible business conduct, human rights and other fundamental values.

On the proposal of the Committee on Financial Markets, in co-operation with the Committee on Digital Economy Policy:

I. **AGREES** that, for the purpose of this Recommendation, the following definitions are used:

- '**Blockchain**' refers to all types of Blockchain technologies and distributed ledger technologies (DLT), including the protocol, network, and application layers. Blockchain technologies and DLT are part of a broader ecosystem of technologies. DLT is a combination of technologies that together create a digital, shared and self-updating ledger of verified transactions or information among parties in a network based on innovative database technologies, including blockchain technologies. DLT uses various types of multi-party consensus mechanisms to validate and record transactions and has various governance systems, ranging from "centralised" models through to instances where there may be no control by a central authority(ies) (also known as "decentralised").
- '**Blockchain Stakeholders'** refers to all organisations and individuals involved in utilising, innovating in relation to, or affected by Blockchains, directly or indirectly, including but not limited to governments, enterprises, workers, developers, academics, consumers, and citizens.
- '**Blockchain Actors'** refers to those Blockchain Stakeholders playing an active role in the Blockchain ecosystem, including in setting practices and policies, and includes organisations, consortia and individuals, including but not limited to governments, that develop or operate Blockchains or their applications.

RESPONSIBLE BLOCKCHAIN INNOVATION AND ADOPTION

II. **RECOMMENDS** that Members and non-Members having adhered to this Recommendation (hereafter, the "Adherents") encourage an ethical and responsible approach to Blockchain innovation and adoption that harnesses its opportunities and minimises its risks and **CALLS ON** all Blockchain Actors, as appropriate to their role and involvement in Blockchains, to take such an approach, by:

1. Compliance and Coherence

Putting in place mechanisms to assess and ensure Blockchain applications' compliance and coherence with relevant policy, legal, and regulatory requirements, including those operating across borders.

2. Governance, Transparency, and Accountability

Taking steps such that the governance frameworks of Blockchains and their applications are transparent and clearly defined, consistent with legal and regulatory obligations, including by:

a) Taking an inclusive, multi-stakeholder approach to the governance of Blockchains, including the development of measures to ensure accountability, including in the case of wind-down of a Blockchain or its applications;

b) Providing transparency, as appropriate, to Blockchain Stakeholders on the use of Blockchains, their design and operation, their governance frameworks, related incentive mechanisms, and on the identities, roles and responsibilities of the relevant Blockchain Actors involved in any Blockchain, in particular with respect to accountability to their compliance obligations;

c) Undertaking initial and regular assessments of Blockchains in relation to compliance with this Recommendation, aimed at continuous verification and validation over their lifecycle through proportionate approaches, for example, assessment by design, and promote transparency of the results of such assessments to the maximum extent appropriate, as well as providing for remediation if applicable; and

d) Disclosing any changes to governance frameworks or code of Blockchains in a responsible and timely manner.

3. **Interoperability**

Facilitating interoperability of Blockchains, including through open standards and with non-Blockchains and with existing information technology (IT) systems, to support the flow of data and improve protection and individual control of personal data.

4. **Digital Security and Privacy**

Providing digital security and safeguarding privacy in the application of Blockchains, including by:

a) Taking measures to understand and mitigate digital security and privacy-related risks relevant to Blockchains and their applications, including those related to digital identity management, access control, governance and infrastructure;

b) Taking responsibility for risk management, supported by business continuity and aligned with relevant privacy and digital security standards and risk management functions, including by acting transparently, for example, by providing timely reports on digital security incidents including those affecting privacy; and

c) Due to the specific features of many Blockchains, including their near immutability, longevity, and distributed or centralised nature, only gathering and storing personal data where strictly necessary for the intended purpose of the Blockchain application and in compliance with relevant policy, legal, and regulatory frameworks.

5. **Education and Skills Development**

Fostering understanding of Blockchain and the development of Blockchain-related skills, as well as supporting those displaced by the adoption of Blockchain applications and paying due regard to the interests of users, including by:

a) Promoting understanding of Blockchain and its potential applications, benefits, and risks amongst all Blockchain Stakeholders, including as to where and how decision-making takes place in decentralised and centralised governance frameworks, and in order to prevent the emergence of digital divides;

b) Supporting a fair and secure work environment by ensuring workers are appropriately informed and consulted on how Blockchains are deployed in their workplaces; and

c) Endeavouring to provide opportunities and relevant training to build skills, as well as to assess the potential impact of, and assist fair transitions for those displaced by Blockchain applications.

6. **Environmental impact**

Supporting the sustainable use of Blockchain, while identifying and mitigating any negative environmental impacts.

NATIONAL POLICIES AND INTERNATIONAL CO-OPERATION

III. **RECOMMENDS** that when establishing or implementing policy measures related to Blockchain innovation and adoption, taking into account the importance of technology neutrality, and consistent with the above provisions, Adherents:

1. **Develop coordinated policy approaches**, in particular by:

   a) Developing an integrated approach across levels of government to address the challenges and potential opportunities brought by Blockchain, where appropriate, to economies and societies more broadly, taking into account the intersection with other technologies and applicable policies, as well as its cross-border implications; and

   b) Considering Blockchain as a potential tool for achieving policy objectives where appropriate, including for the delivery of government administration and services as well as in international co-operation.

2. **Foster an environment that is supportive of technological innovations, such as Blockchain research and development**, with multi-stakeholder collaborations (e.g. with the public, private, and academic sectors), that would provide a supportive environment for, among other things, the use of Blockchain technology by small and medium-sized enterprises and entrepreneurs and its use in infrastructure and the provision of services, where appropriate.

3. **Strive to build human capacity** by supporting education and training for all Blockchain Stakeholders on the skills necessary to understand and work with Blockchains, where appropriate, including to support fair transitions for those whose jobs are disrupted and displaced.

4. **Support an enabling policy environment for technological innovations**, in particular by:

   a) Gathering diverse inputs when forming public policy related to Blockchain based on transparency and inclusive multi-stakeholder dialogues; and

   b) Developing institutional capacity and mechanisms for examining potential Blockchain applications with a view to:
      i. ensuring their coherence with policy, legal, and regulatory requirements;
      ii. assessing the need, benefits and risks for adapting those requirements as well as adequate risk management controls, and implementing modifications as necessary and appropriate;
      iii. supporting, as appropriate, research, development, and/or deployment of Blockchains, including through, for example, regulatory sandboxes or innovation labs.

5. **Co-operate internationally**, in particular by:

   a) Working together to progress towards global co-operation across frameworks for Blockchain innovation and adoption and thereby best harness its potential opportunities, while preventing or minimising its risks;

   b) Working together in the OECD and other international and regional fora to foster the sharing of knowledge and enhancing cross-border co-operation and collaboration on and through Blockchain and its applications; and

   c) Promoting multi-stakeholder, consensus-driven, and open processes for the development of global technical and ethical standards for Blockchain and its applications.

IV. **ENCOURAGES** all Blockchain Stakeholders, as appropriate to their role and involvement in Blockchains, to support and promote the implementation of this Recommendation.

V. **INVITES** the Secretary-General and Adherents to disseminate this Recommendation.

VI. **INVITES** non-Adherents to take due account of, and adhere to, this Recommendation.

VII. **INSTRUCTS** the Committee on Financial Markets, in co-operation with the Committee on Digital Economy Policy and in consultation with other relevant committees, to:

a) serve as fora for exchanging information on Blockchain policy in their respective policy areas, as well as for exchanging experiences with the implementation of this Recommendation and fostering multi-stakeholder and interdisciplinary dialogue on innovation and adoption of Blockchain; and

b) report to the Council on the implementation, dissemination, and continued relevance of this Recommendation no later than five years following its adoption and at least every ten years thereafter.

About the OECD

The OECD is a unique forum where governments work together to address the economic, social and environmental challenges of globalisation. The OECD is also at the forefront of efforts to understand and to help governments respond to new developments and concerns, such as corporate governance, the information economy and the challenges of an ageing population. The Organisation provides a setting where governments can compare policy experiences, seek answers to common problems, identify good practice and work to co-ordinate domestic and international policies.

The OECD Member countries are: Australia, Austria, Belgium, Canada, Chile, Colombia, Costa Rica, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, Korea, Latvia, Lithuania, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, the Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Türkiye, the United Kingdom and the United States. The European Union takes part in the work of the OECD.

OECD Legal Instruments

Since the creation of the OECD in 1961, around 460 substantive legal instruments have been developed within its framework. These include OECD Acts (i.e. the Decisions and Recommendations adopted by the OECD Council in accordance with the OECD Convention) and other legal instruments developed within the OECD framework (e.g. Declarations, international agreements).

All substantive OECD legal instruments, whether in force or abrogated, are listed in the online Compendium of OECD Legal Instruments. They are presented in five categories:

- **Decisions** are adopted by Council and are legally binding on all Members except those which abstain at the time of adoption. They set out specific rights and obligations and may contain monitoring mechanisms.

- **Recommendations** are adopted by Council and are not legally binding. They represent a political commitment to the principles they contain and entail an expectation that Adherents will do their best to implement them.

- **Substantive Outcome Documents** are adopted by the individual listed Adherents rather than by an OECD body, as the outcome of a ministerial, high-level or other meeting within the framework of the Organisation. They usually set general principles or long-term goals and have a solemn character.

- **International Agreements** are negotiated and concluded within the framework of the Organisation. They are legally binding on the Parties.

- **Arrangement, Understanding and Others**: several other types of substantive legal instruments have been developed within the OECD framework over time, such as the Arrangement on Officially Supported Export Credits, the International Understanding on Maritime Transport Principles and the Development Assistance Committee (DAC) Recommendations.