# PROPOSAL TO DEVELOP A NEW WIPO STANDARD REGARDING BLOCKCHAIN

*Document prepared by the IP Australia*

1. IP Australia would like to request that the Committee on WIPO Standards (CWS) consider and define a new WIPO standard for the development and use of blockchain technology across Member States. This new standard should support guiding principles, common practice and use of terminology as well as deliver a framework to support collaboration, joint projects and proofs of concept.
2. Francis Gurry, Director General of the World Intellectual Property Organization (WIPO), said technologies like blockchain will have a radical impact on the existing IP landscape. Currently, we do not have an agreed WIPO standard for the development and implementation of blockchain across Intellectual Property Offices (IPOs).
3. IP Australia recognises that several IPOs and the International Bureau of WIPO are discussing and making headway in the embracement of this disruptive technology.
4. At its most basic level, a blockchain is a database. It is used to store information. The way it stores information has some special characteristics that make it particularly useful in certain situations. Blockchain is often referred to as a distributed ledger. A “ledger” may be familiar – especially if you’ve taken an accountancy course. It keeps track of information about transactions. “Distributed” is a core part of the blockchain model. Rather than only one ledger existing, many copies of the whole ledger are held on many nodes (e.g. servers) in a network. There is no central authority. Every time a new transaction is added to the ledger, it is added to and processed by every copy of the ledger.
5. Blockchain has several beneficial qualities that IPOs can embrace;

* It is cryptographically secure
* It can be public or private
* It can enable automation through smart contracts
* It builds consensus and collaboration
* It can enhance trust
* Data on the blockchain cannot be censored or changed

1. IP Australia has recently partnered with a blockchain technology start-up to develop a blockchain-based patent IP processing and storage solution. Moreover, we have built a set of automatic capabilities through a blockchain facility called smart contracts. Our proofs of concept have demonstrated the suitability of the technology for storing patent data. We will shortly move onto a testing stage, where we will aim to stress the system and ensure that it is fit for expansion to all Australian IP data.
2. There are a plethora of opportunities and potential to scale this work to an international level, from uses in provenance, trade secrets and licensing to supporting current initiatives such as authority files or as a secure data transfer tool such as the use of private blockchains with key data held on the blockchain and supporting information off the blockchain when connecting between IPOs and the International Bureau.
3. However, we believe that due to the lack of a WIPO standard that provides some governance across the use of this technology in the IP Sector, IPOs may implement significantly different designs, methodologies and approaches to its implementation. This would lead to an inability to deliver joint blockchains and realise the benefits that this technology has to offer. The objective of the proposed task is to develop a new standard for the use of and implementation of blockchain technology in IPOs. The task will require the establishment of guiding principles, common practice and use of terminology to deliver a framework that supports collaboration, joint projects and proofs of concept (POC).
4. IP Australia proposes that a new task and a corresponding Task Force should be established under the CWS to develop the new WIPO standard.
5. It is suggested that the Task Force commence associated activities including the collection of information about IPOs’ present and future use of blockchain, their architecture and approach to implementation (survey). As well as organizing workshops or Task Force meetings and agreeing on a joint POC that supports the building of high level design principles that IPOs may leverage as they apply blockchain technology to historic and emerging problems.
6. IP Australia proposes that the new WIPO standard for blockchain should consider but is not limited to:
7. Providers
   * + 1. Every public node worldwide [for public blockchains]

* Miners for Proof-of-Work
* Harvesters for Proof-of-Importance, and
* Validators for Proof-of-Stake may be listed within ‘providers’
  + - 1. Private blockchains use private nodes that they provide themselves

1. Language

* C++
* Googles "Go"
* Solidity
* Serpent
* Viper
* Python and
  + - 1. Others

1. Public or Private
   * + - Bitcoin made the first public blockchain famous because it removed third party authorization
       - Private blockchain re-applies third party authorization
2. Efficiency
   * + - Automation
       - Smart contracts
3. Data On or Off
   * + - On to track the transaction stored on the blockchain [public or private]
       - Off to store the data that the blockchain transaction points to
4. Security
   * + - The immutability of blockchain data is often seen as the key security attribute of blockchain in a public blockchain
       - Security is traded off in private blockchains
5. Consensus - how should Consensus be achieved?
   * + - By competing Miners in public blockchains trying to find a solution to target nonce or
       - By private algorithms in public blockchains and designated roles
       - Methods of finding consensus in a blockchain e.g. practical byzantine fault tolerance algorithm (PBFT), the proof-of-work algorithm(PoW) ,the proof-of-stake algorithm (PoS), and the delegated proof-of-stake algorithm (DPoS)
6. Participants
   * + - Implementations may provide the ability to specify a blacklist of participant identities who are not permitted to submit transactions
7. Credentials
   * + - Handling of user credentials using key management solutions such as digital wallets
8. Scaling Mechanisms
   * + - Various On-Chain (Layer 2) scaling mechanisms may be implemented, such as [Plasma], [sharding], easy parallelizability [EIP-648], as well as other Off-Chain (Compute) scaling mechanisms.
9. IP Australia would greatly appreciate that the CWS discuss this issue at its sixth session with a view to developing the new WIPO standard for blockchain, which will clearly guide IPOs to deliver solutions leveraging this technology that are harmonized in approach and allow for interoperability.
10. IP Australia proposes the CWS:

(a) to create its new Task of which the description would read "Collect information about IPO developments in, use of and experience with blockchain, assess current Industry Standards and consider merit and applicability to IPOs and the development of New WIPO Standard for blockchain; and deliver guiding principles, common practice and use of terminology as a framework supporting collaboration, joint projects and proofs of concept."; and

(b) to establish a new Task Force which will be called “Blockchain Task Force” to handle the new Task.

[Annex II follows]