

Introduction to Xinghuo BIF & DIF China SIG proposal

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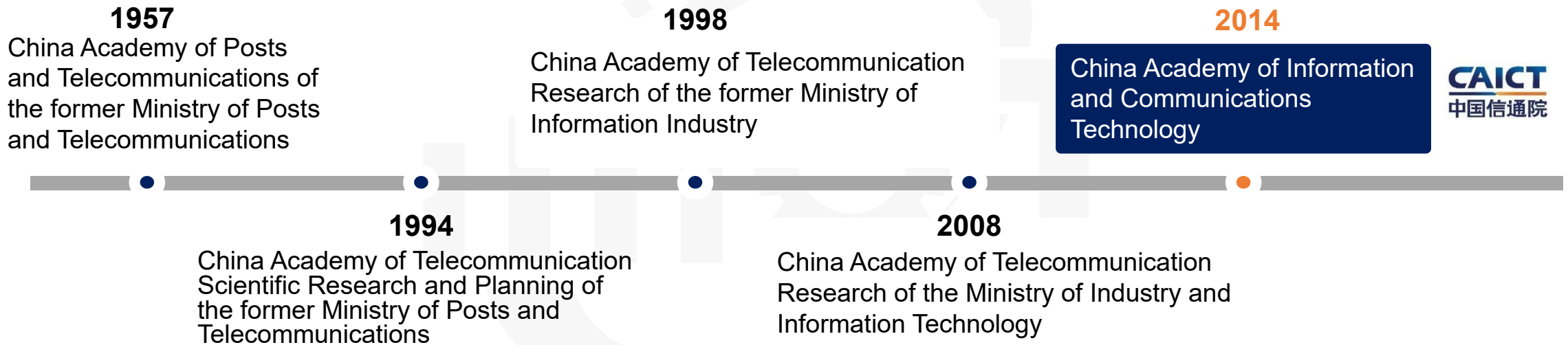
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China Academy of Information and Communications Technology

Founded in 1957, CAICT is a **scientific research institute** directly under the Ministry of Industry and Information Technology (MIIT) of China and plays a role as an **innovation leader in China's ICT industry**, including Industrial Internet, Blockchain, 5G applications and AI, etc. Apart from that, we are also **supporting government decision making process**, and **incubating innovative solutions** for China society.



MISSIONS

Think-tank and enabler for innovation and development in the information society

POSITIONING

Top specialized think-tank for the government, innovation and development platform for the industry

VISION

Boosting prosperity with virtues and expertise

ORGANIZATIONS



16 Business Departments



4 Branches
Shenzhen Chongqing Shanghai Guangzhou



5 Subordinate Centers



24 Industry Support Centers for
Provincial Communication Administrations



36 Affiliated Enterprises

TALENTS



Employees: **5227**



Average Age: **35**



Awardees of Special Government
Allowance by the State Council: **57**



Overseas Returnees: **8.3%**



Master's Degree or Above : **55%**

CAICT **provides support** to the development and implementation of a series of **major national strategies and policies** concerning ICT and the integration of industrialization and informatization.

Since 2013

Lead Contributor



21 national-level documents

147 ministry-level documents

Main Contributor



10 national-level documents

30 ministry-level documents

White Papers and Blue Books

Published a series of white papers and blue books on digital economy, 5G, industrial Internet, AI, Internet+, cloud computing, big data, blockchain, IoT, data center, IoV and FinTech.

White Paper

195

Since 2007

Blue Books

110

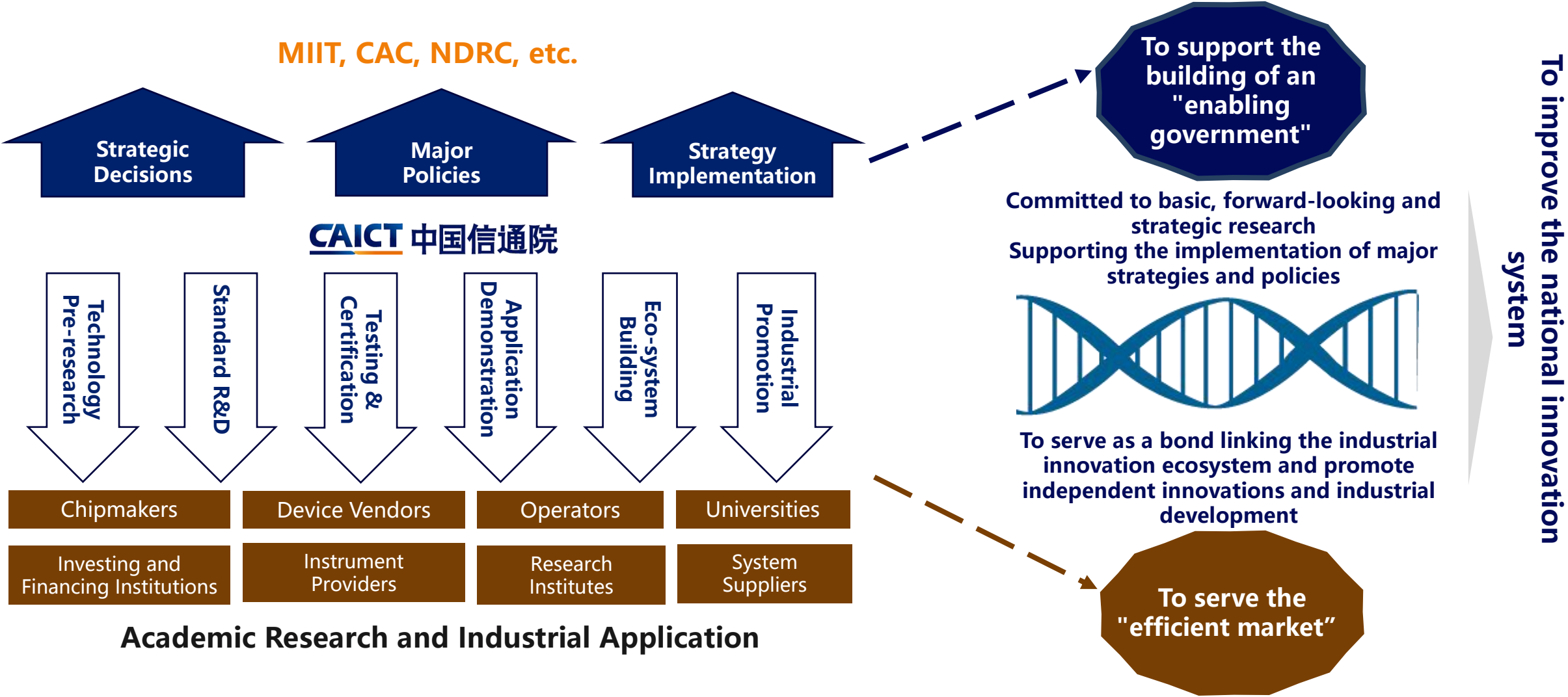
Since 2020

CAICT Insights on ICT



- Top 10 ICT Trends of the Year
- Annual Review of Key Areas

- CAICT is the **only ICT innovation platform in China** that integrates strategy & policy research, new technology research, standard development, testing and certification, and industrial promotion.



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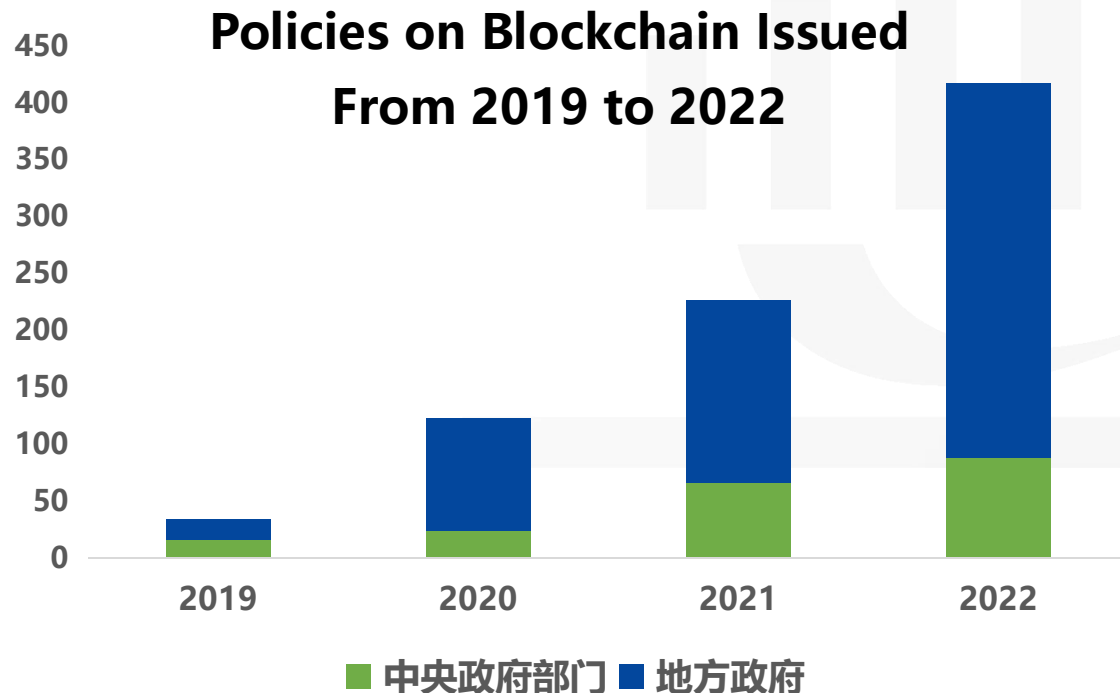
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04 Working Plans for DIF China SIG

Background in China | Blockchain Application Pilots Establishment

- Since 2019, **Chinese government at all levels** has attached importance to both technology and industry development of blockchain, **issuing documents to encourage its innovation, application and infrastructure construction.**
- In 2022, a total of **329** blockchain projects and relative policies were launched **across the country**, covering multiple industries and fields.

- The **list of National Blockchain Innovation and Application Pilots** was published on January 30, 2022 by **Office of the Central Cyberspace Affairs Commission**, including **15 comprehensive pilots** and **164 featured pilots** in all **key fields** closely relating to **the digitalization of real economy**, serving as a guidance for national development of blockchain.



Different Fields and Industries

blockchain + manufacturing

blockchain + energy

blockchain + governmental service and data sharing

blockchain + rule of law

blockchain + tax service

blockchain + adjudication

blockchain + supervision

blockchain + copyright

blockchain + civil affairs

blockchain + human resources

blockchain + education

blockchain + health

blockchain + trade & finance

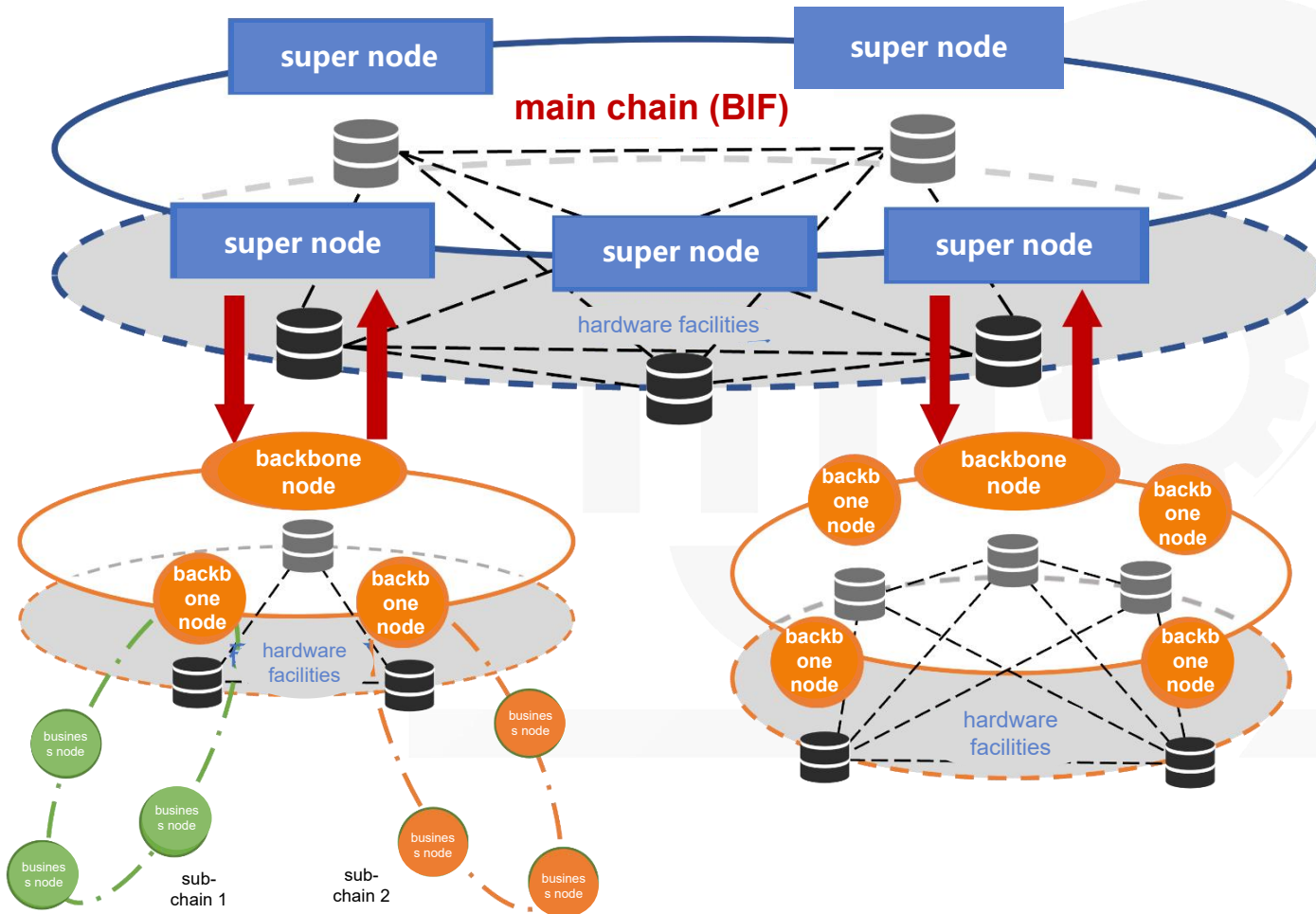
blockchain + risk management

blockchain + equity market

blockchain + cross-border finance

Xinghuo BIF-Architecture

- With an open and integrated structure, Xinghuo BIF provides the inserted blockchain networks with identifier services, realize interconnectivity acrossing blockchains, regions and industries, and foster Internet of Value that is intelligent and trustworthy.



Permissioned public chain
DID native network

Largest-scale blockchain
Infrastructure in China

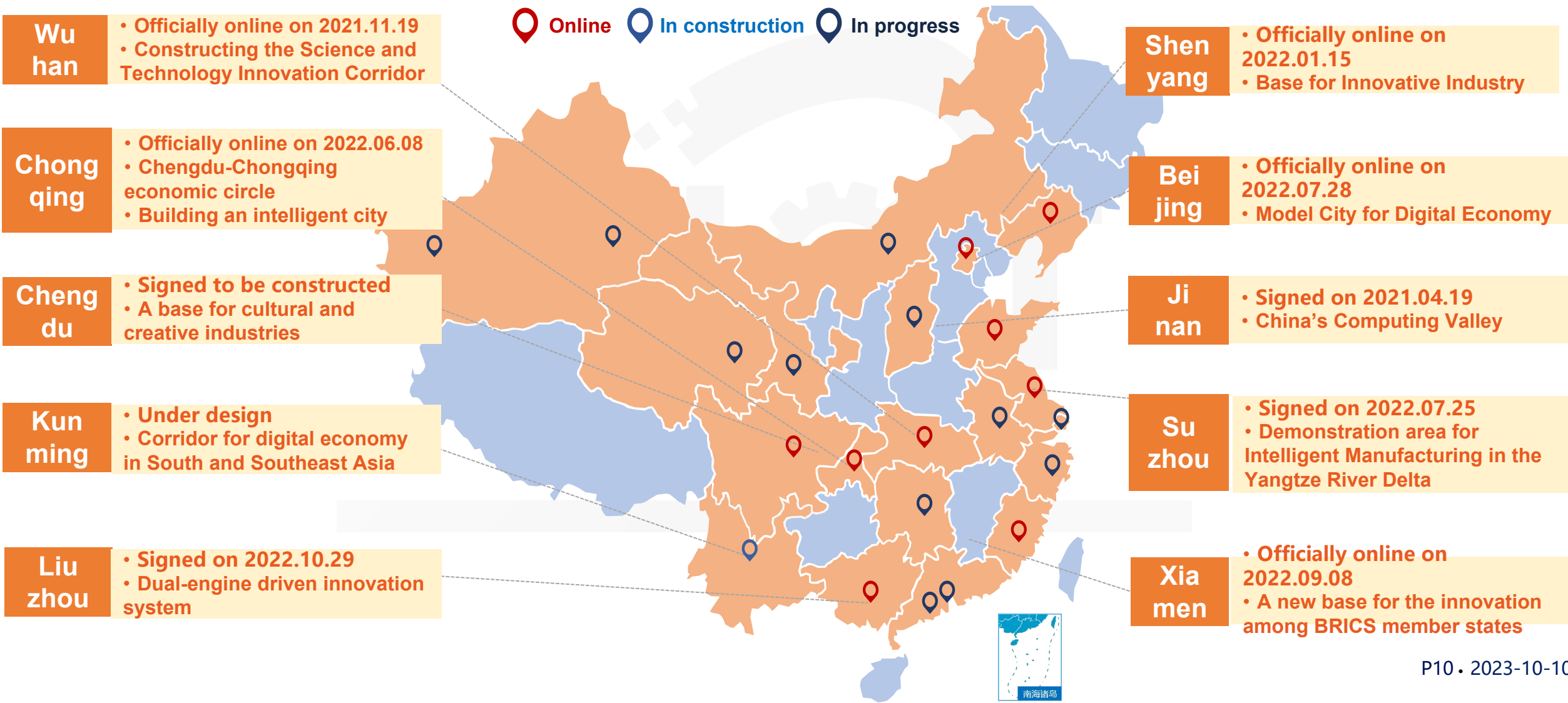
Primary chain-sub chain
Mechanism

BIF-Core
DPOS+PBFT

Xinghuo BIF Architecture

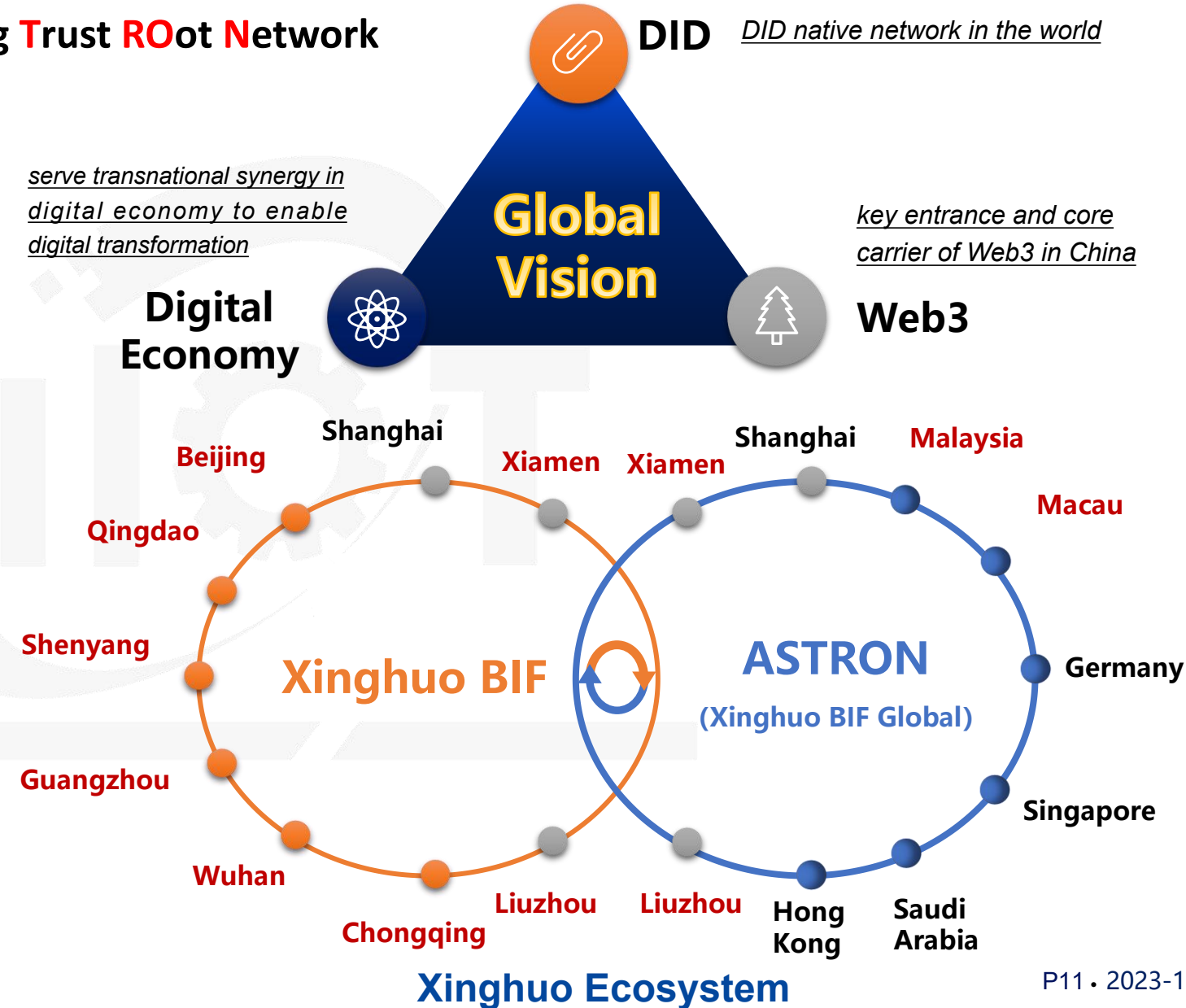
Xinghuo Primary Chain Construction

- ❑ For Xinghuo Primary Chain, a systematic layout of establishing pilot areas is completed. **9** nodes are signed in construction and **12** nodes are in progress, aiming to provide services nationwide.



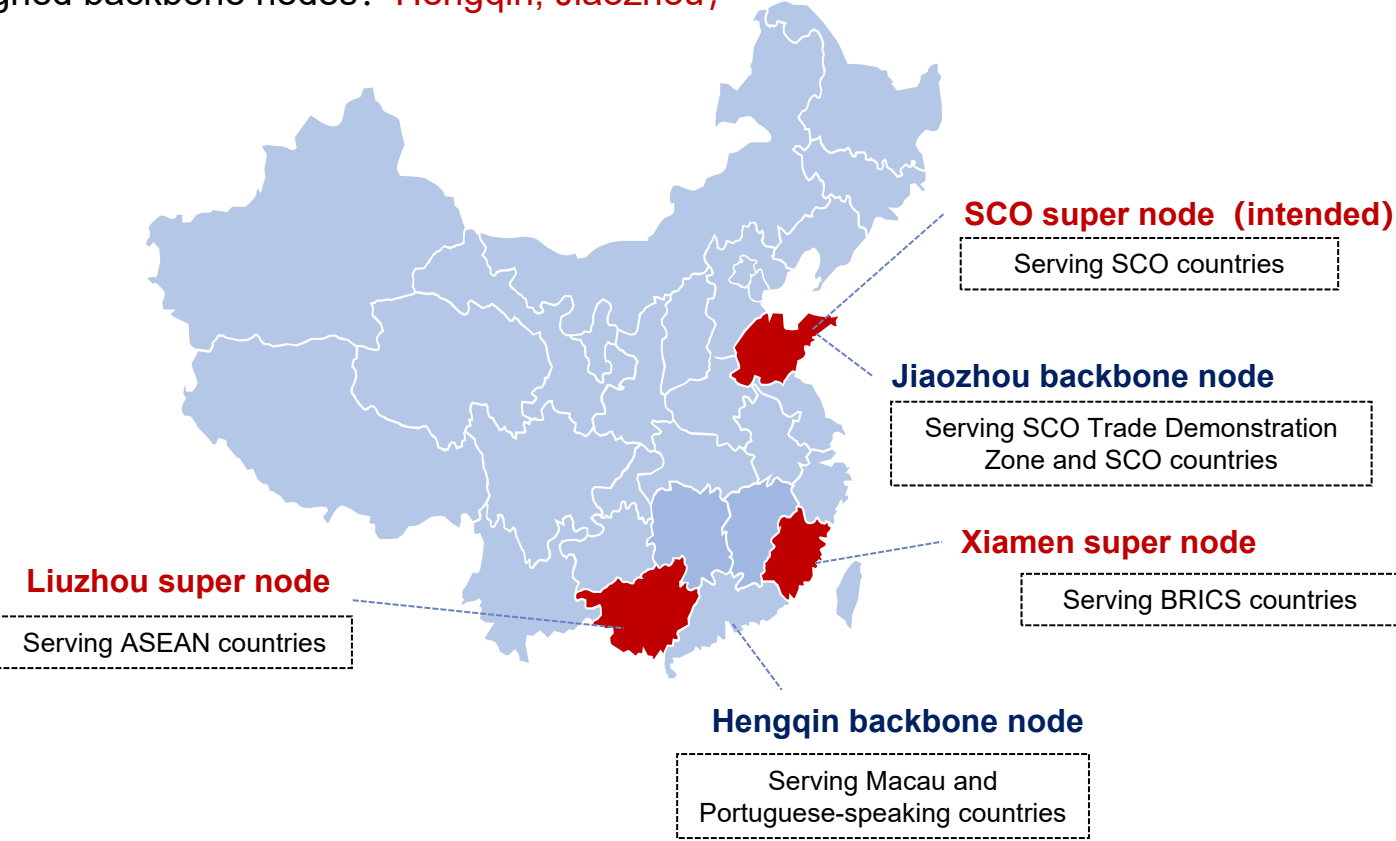
Algorithmic and Self-certifying Trust ROot Network

ASTRON aims at building a native DID network around the world, and will serve the development of digital economy and Web3.



Progress of domestic outbound nodes

- ✓ Signed super nodes: **Xiamen, Liuzhou**;
- ✓ Intended super nodes: **SCO**;
- ✓ Signed backbone nodes: **Hengqin, Jiaozhou**;



SIEMENS——
PCF Traceability Platform.



SAP——
Trusted decentralized identity service.



Panasonic——
Power battery public service platform.



Chinese Mainland



Signed Places

Malaysia, Macau



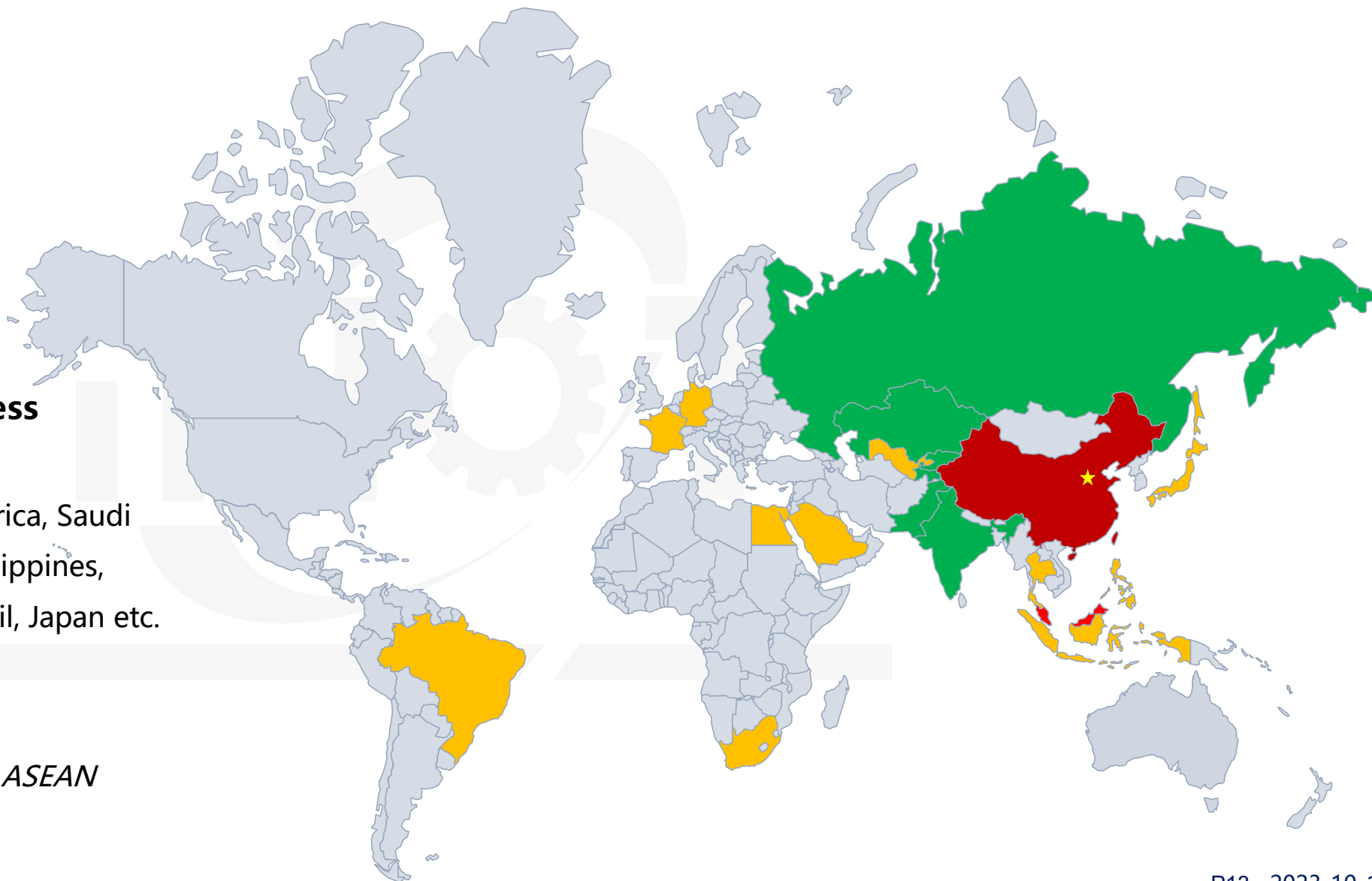
**Places with business
in development**

Hong Kong, Singapore, South Africa, Saudi
Arabia, Uzbekistan, Thailand, Philippines,
Indonesia, Germany, France, Brazil, Japan etc.



Potential places

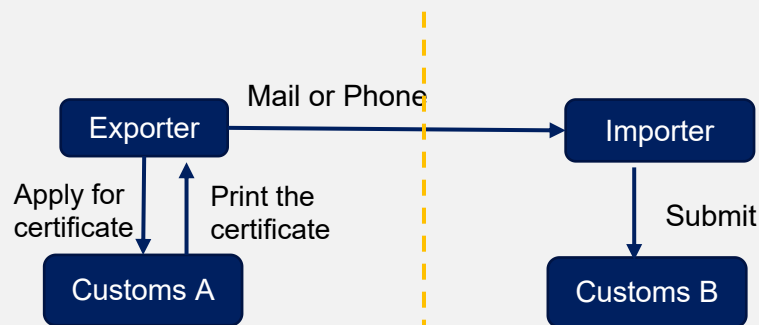
*"BRICS countries, SCO countries, ASEAN
countries*



Use Case: Malaysia Supernode-Certificate of Origin

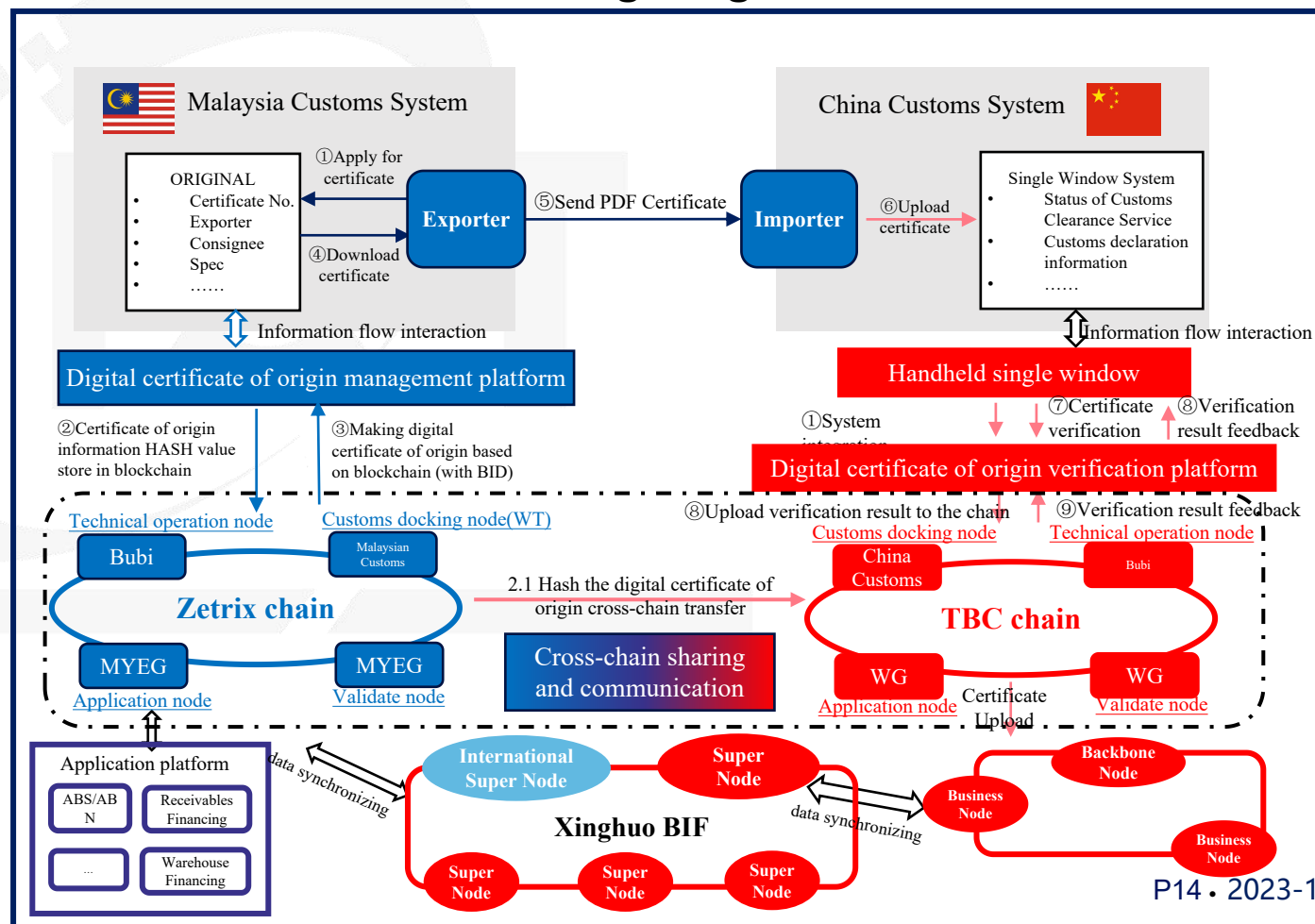
- The original paper-based certificate is transformed into an electronic verification by blockchain technology, which **improves the accuracy and efficiency of cross-border verification, reduces costs, and accelerates customs clearance**;
- The customs systems of China and Malaysia pay close attention to cross-border data flow and strictly control the flow of original data. At present, they plan to **use HASH value in blockchain to verify the digital certificate of origin cross-chain transfer**.

Original Method



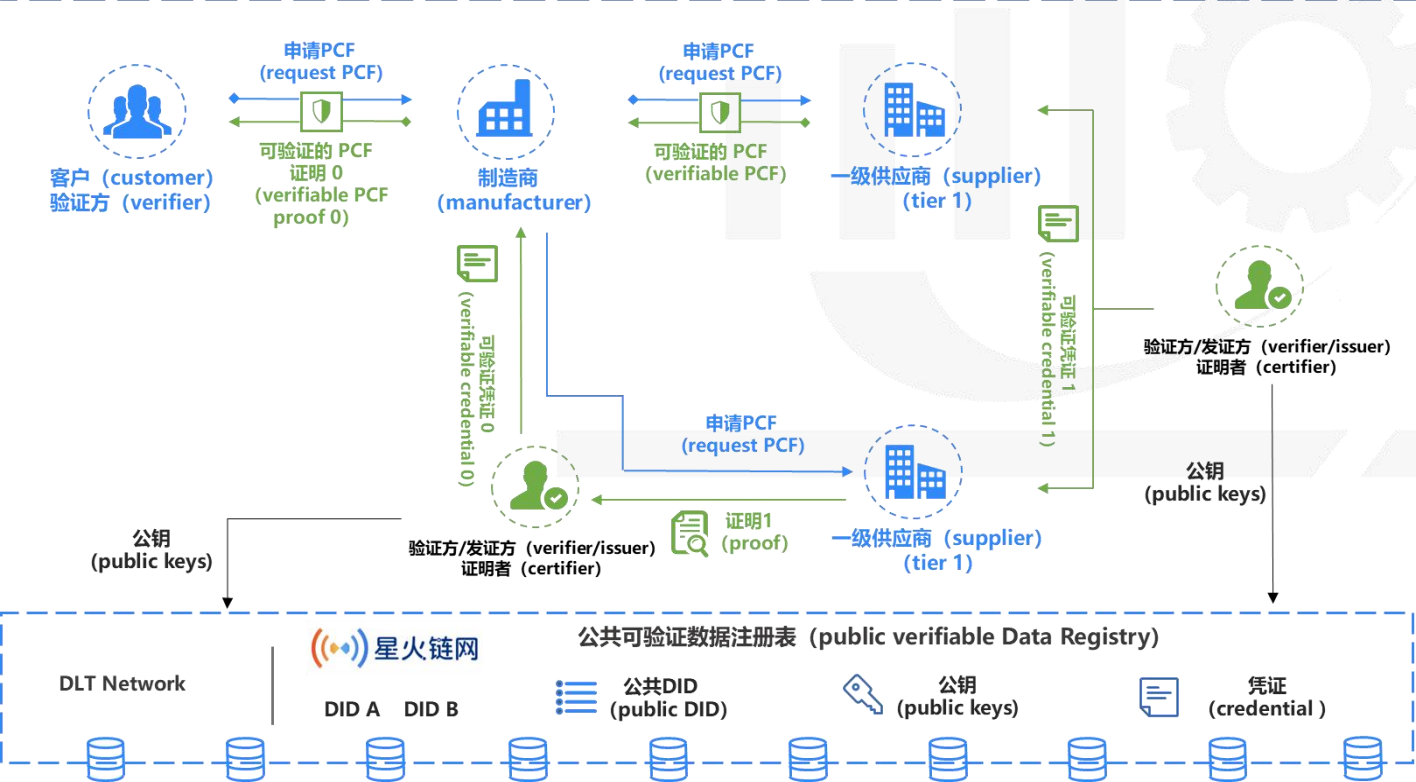
Customs of the importer cannot transmit the certificate information in a short time, nor find an effective way to verify paper certificates, resulting in long period, high cost and inefficient customs clearance.

Using Xinghuo BIF



- In response to the potential **EU carbon tariff** on products exported to the EU, **Siemens China** partners with **Xinghuo ASTRON** to build global trusted digital platform **tracking carbon footprint** based on blockchain, DID, VC and other technologies.

- ✓ **Service targets:** enterprises exporting products to the EU;
- ✓ **Core value:** trusted flow of carbon footprint along the supply chain without exposing supply chain information with the help of blockchain, DID and VC;
- ✓ **Cross-border verification:** VC can be transmitted off-chain, and the overseas verifier can access the chain to obtain the issuer's public key and verify the VC.



Product Carbon Footprint

SIEMENS SiGREEN 碳足迹可信 算与追溯 En

Serial No.:SZVP7101659125

103752202

Product Carbon Footprint 333.30kg CO₂e (from cradle to gate)

Serial: SZVP7101659125

Product Name: 1FK2308-4AB0...

PcfTotal: 333.30 kg

Generated Time: 2022-7-20 15:...

Product Id: 103752202

Weight: 17.998 kg

Specific PCF Value

Own Manufacturing (Scope 1) 0.65 kg CO₂e

Own Manufacturing (Scope 2) 18.33 (50.12 - 31.79) kg CO₂e

Stator: 8.62 (23.56 - 14.94) kg CO₂e

Rotor: 2.90 (7.93 - 5.03) kg CO₂e

Assembly: 3.74 (10.22 - 6.48) kg CO₂e

Painting & Packing: 1.73 (4.73 - 3.00) kg CO₂e

Utility: 1.34 (3.68 - 2.34) kg CO₂e

Upstream (Transportation) 72.00 kg CO₂e

Upstream (Raw Material) 242.32 kg CO₂e

*Use renewable energy to offset



Founded spontaneously by 70+ units, ABI is **the first** non-profit blockchain legal person approved by the Ministry of Civil Affairs in China.

ABI: Multiple Players, Wide Coverage, Sufficient Supply & Demand

There has been 600+ domestic and foreign members in ABI, including 70+ core members. ABI has formed a internationalized network with a wide coverage of supply-end and demand-end players from all sectors.

High Involvement: All-industry Coordination



Wide Platform: Full chain service capability



High Recognition: 30+ International Organizations, Universities and Enterprises



Wide Coverage of 25 Provinces and Autonomous Regions



ABI's In-depth International Technological Exchanges

With the thinktank and industrial resources of CAICT, ABI has been actively engaged with international exchanges in blockchain besides ICT. By the end of 2022, ABI has bonded with 30+ core technological organizations, industrial alliances and prestigious universities overseas, speaking out to the world in blockchain construction and taking an initiative in national cyber governance.

Chinese-English Information Spreading: Bi-weekly Report on Blockchain International Updates + ABI Newsletter

International Communication Matrix: Foreign Official Website, We Media and other Channels.

Blockchain Linking China and the World: Brand Promotion for International Exchanges

Bridging for ABI Members Going out to ASEAN Countries: Cooperation with Singapore Association of Blockchains and MYEG.

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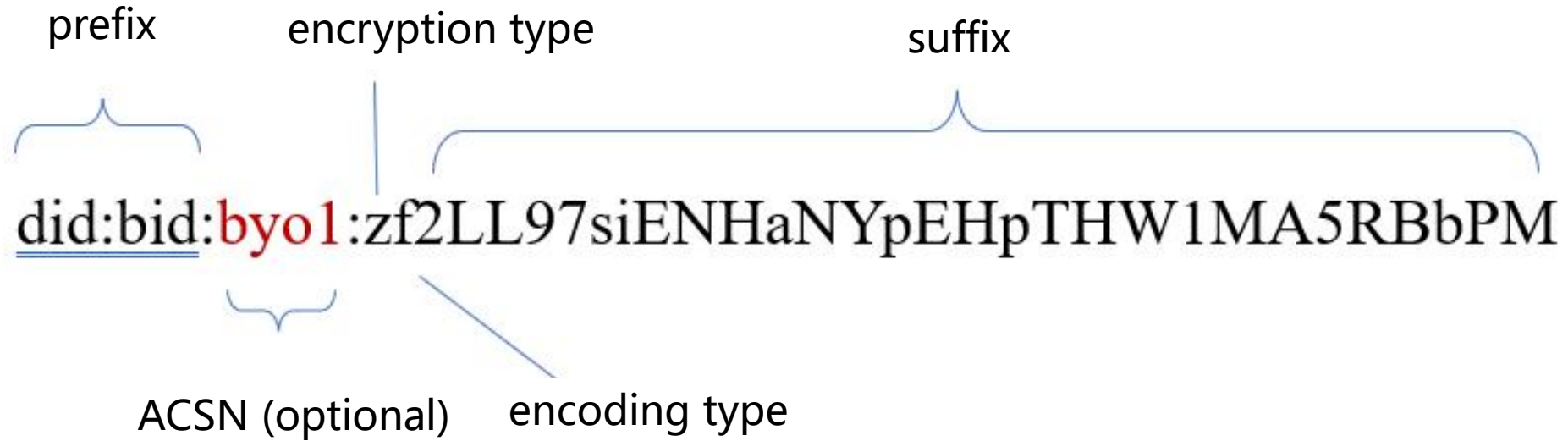
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(()) DID Method | The blockchain-based identifier -- BID



ACSN (Autonomous Consensus System Number) : due to the Primary chain-sub chain Mechanism, **ACSN is used to mark sub chain**. Primary chain does not have ACSN.

Depending on the algorithm used, **BID supports variable-length encoding of 39-57 bits**, making it suitable for various business scenarios and compatible with different devices.

encryption type	algorithm	encoding type	coding scheme
'e'	ED25519	'f'	Base58
'z'	SM2	's'	Base64
's'	Secp256k1	't'	Base32

Blockchain-based Name System (BNS)

Based on Xinghuo Blockchain, BNS formalize an innovative digital name space for Xinghuo global ecosystem.

BNS Name

maps

DID

Blockchain Address

IP

NFT

IPFS Address

.....

Any identifier machine readable

• **Human Readable & Self-Controlled**

• **A Simple Name**
caict, jason, herewego, paytome.....

• **Can Extend Multiple Relationships**
"." Hierarchical: xinghuo.caict
"- " Parallel: ethereum - xinghuo
"/" Composition: robotarm/body

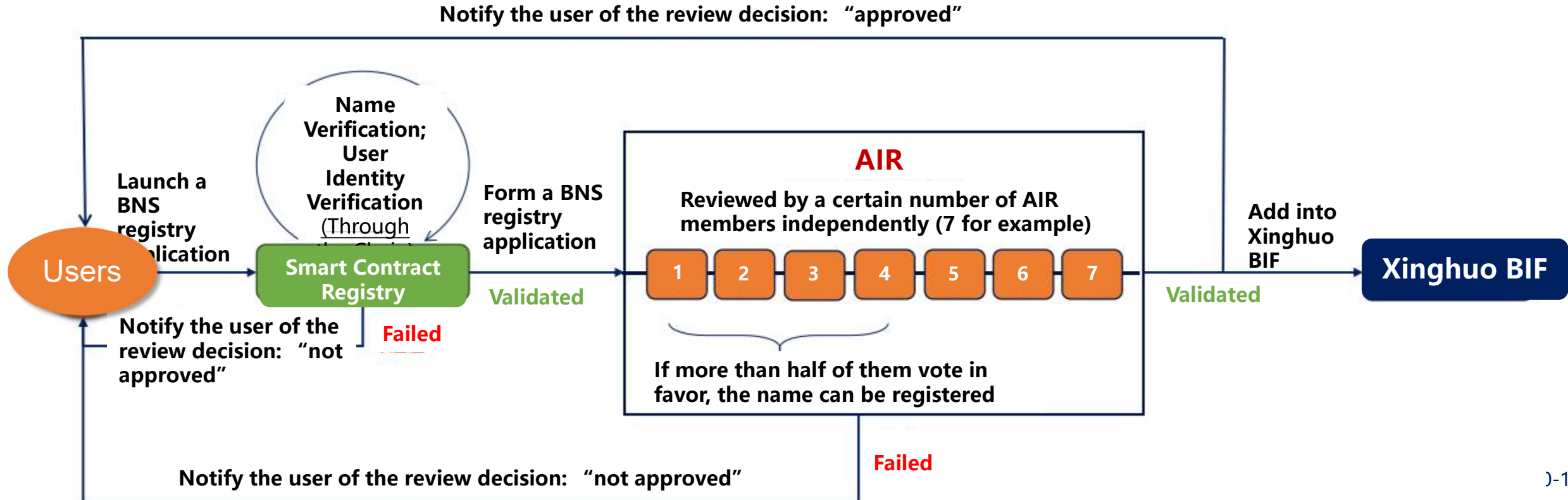
• **Eliminate Prohibited & Sensitive Words**
(1) Prohibited & Sensitive words database matching;
(2) randomly allocate 7 AIR members to check;
(3) AI testing in the future;

BNS | Alliance of ID^{BNS} Registry (AIR)

Alliance of ID^{BNS} Registry (AIR): a non-profit development alliance we formed with global partners, designed to promote the global development of BNS under the core principles of equality, openness, inclusivity, and mutual benefit.

- Equal voting rights among all the alliance members.
- Fair review of name applications.
- Joint development of technical and business routes.
- Shared management of operational modes, namespace, fundings, etc.

Welcome more partners to join AIR.

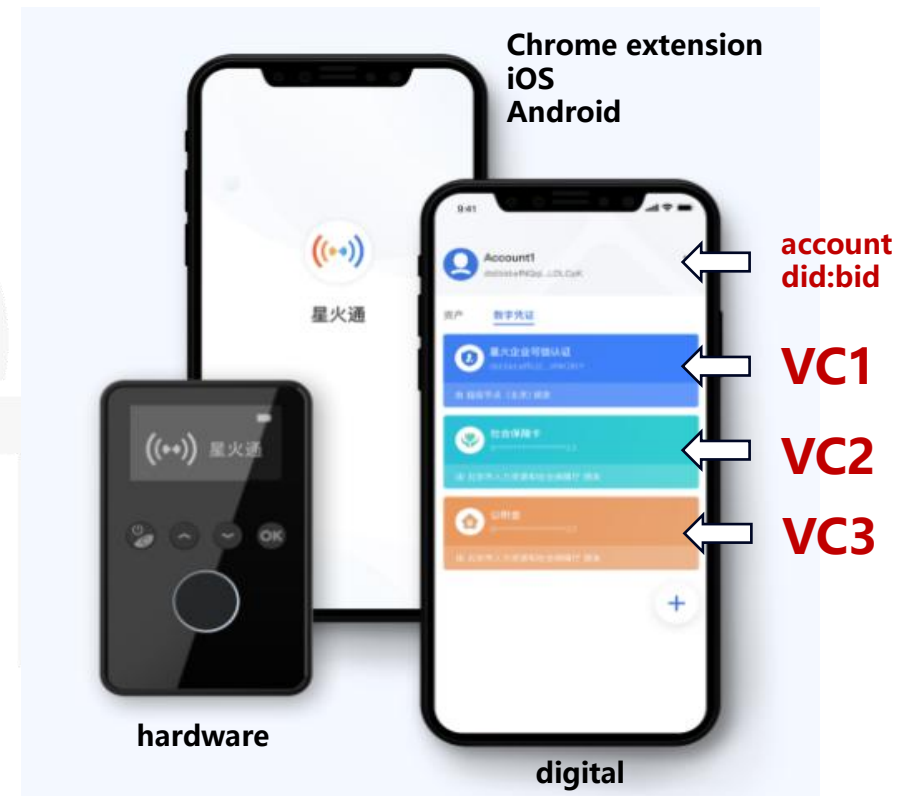


hardware wallet

Xinghuo Hardware Wallet SI is a secure, portable, and user-friendly private key storage device built on the **Xinghuo chip**. By storing user keys in the secure area of the Xinghuo chip, **the access, copy, and export of the key during the transaction signature process are prohibited**, thus isolating network attacks and ensuring the security of the user's private key.

digital wallet

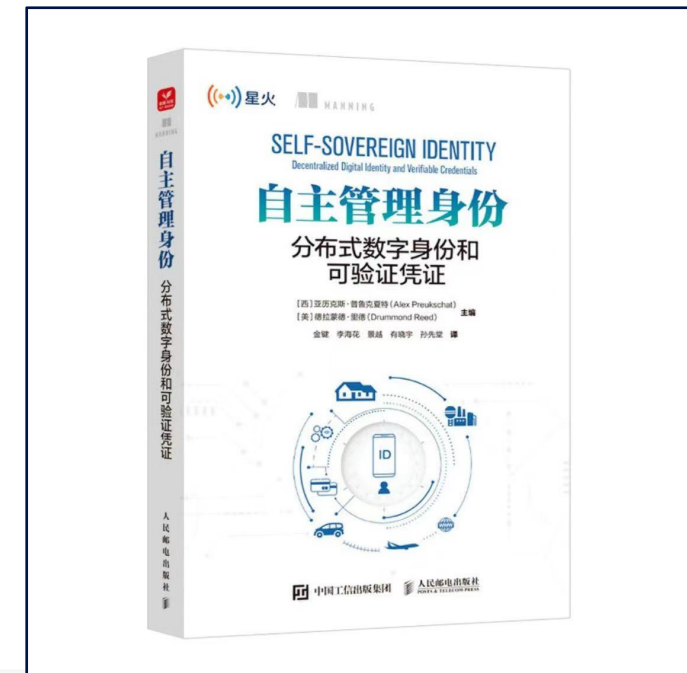
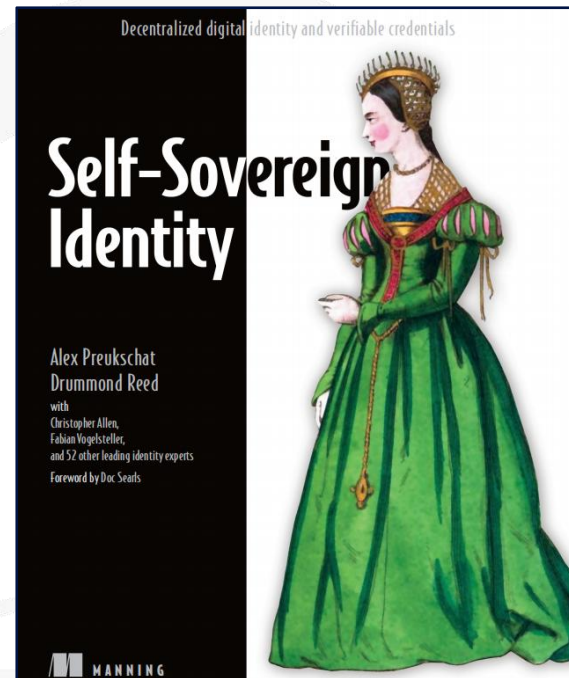
Xinghuo digital wallet is a digital identity client, which allows you to **locally manage your private keys and identity data**. You can sign and authorize the presentation of identity data, thereby obtaining BIF application services.



- Discussing with Open Wallet Foundation, to facilitate wallet interaoperability globally.
- Push forward Xinghuo Wallet open source related work, to make an more open, secure and user friendly wallet ecosystem.

In China, CAICT and our partners have been putting great effort in creating this decentralized identity ecological community for many years.

We have launched the DID-oriented Blockchain infrastructure called Xinghuo BIF since 2020, and we have published the Chinese version **SELF-SOVEREIGN IDENTITY-Decentralized Digital Identity and Verifiable Credentials** book this year so that people from all industries can realize the potential power of the new technology.



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The goals and objectives of the DIF CHINA SIG are as follows:

- Promote and advocate for the **adoption and implementation** of DIF standards and technologies in China.
 - Initiate and organize decentralized identity-related **events**.
 - Form an **open and non-IPR group**. Fostering collaboration and knowledge sharing among members.
 - Promote exchanges with the global decentralized identity technology. Pursue the **internationalization and localization** of China's decentralized identity industry, and more **international cooperation**.
 - Assist in facilitating communication and collaboration among **DIF members and partners in China and globally**.
- 

To contribute to the DIF CHINA SIG, we are prepared to:

Operate:

- identifying quarterly activity plans and topics.
- issuing event announcements and organizing online/offline activities.

Union:

- academia, colleges institutions
- research institutes
- blockchain enterprise
- industry

To DIF:

- regularly reporting the progress and accomplishments of the DIF CHINA SIG to the DIF Open Group.
- assist in recruitment and member development efforts for DIF in China.

Organize conferences and events:

- demonstrate W3C/DIF technical standards
- lectures, training sessions
- promote projects, such as Xinghuo BIF, and other DIF's projects.

打造万物互联的智能世界



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