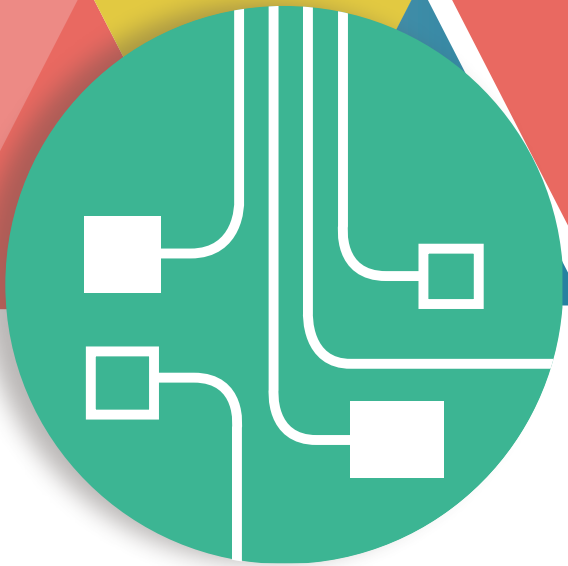


BLOCKCHAIN HACKMX

SFP SECRETARÍA DE LA FUNCIÓN PÚBLICA

MX MÉXICO DIGITAL

gob.mx

REDGEALC

RENAPO REGISTRO NACIONAL DE POBLACIÓN E IDENTIFICACIÓN PERSONAL

SE SECRETARÍA DE ECONOMÍA

SAT

JALISCO GOBIERNO DEL ESTADO

CONAFOR COMISIÓN NACIONAL FORESTAL

talentnetwork

talent hackathon

BLOCKCHAIN
HACKMX

Constitutional reforms

Energy

Telecommunications

Economic competition

Financial

Tax reform

Labour

Education

National code of criminal procedures

Legal protection

Political - electoral

Transparency

Internet access became a constitutional right.

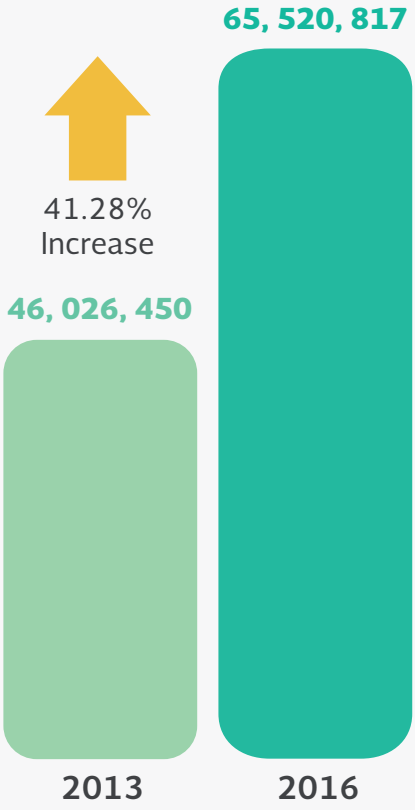
Establishment by law of a Universal Digital Inclusion Policy. **The National Digital Strategy**

Legal framework for telecommunications and up-to-date broadcasting to promote competition.

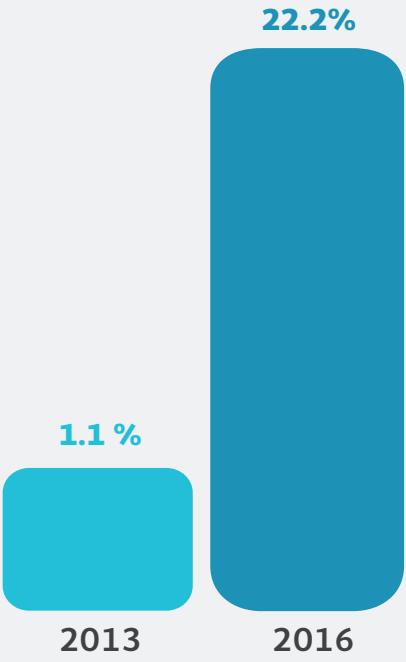
Autonomous regulatory entity to increase competition in the telecommunications sector - Federal Institute of Telecommunications (IFT by its initials in spanish).

Digital Ecosystem in Mexico

Internet Users in Mexico



Percentage of users using the internet to interact with government



Sources:
gobtools June 30, 2017/ http://www.gob.mx/indicadores /NewRelic
INEGI, ENDUTIH 2016 http://www.beta.inegi.org.mx/proyectos/enchogares/regulares/dutih/2016/default.html

Electronic Commerce in Mexico

Users that buy online
37%

Mobile Commerce Users
6%

Credit card
51%

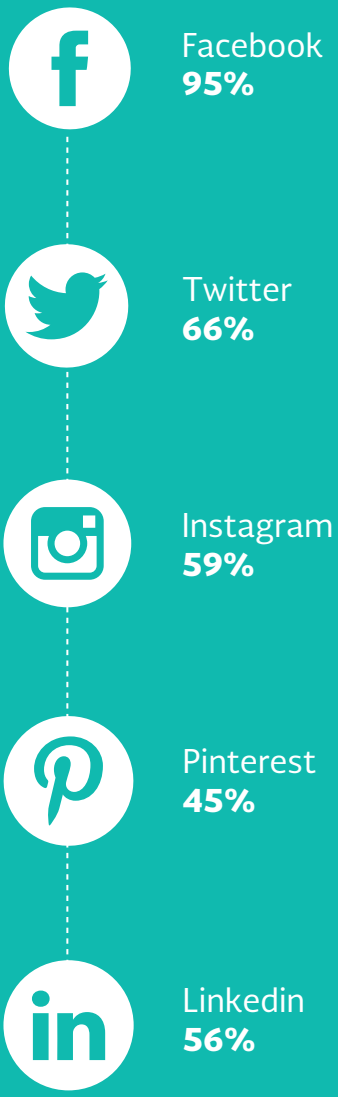
Deposit
22%

Electronic wire
27%

Other
7%

Source:
AMIPCI Estudio sobre los hábitos de los usuarios de internet en México 2017.
We are Social Web Index | Guide to Digital, Social & Mobile in 2015. Pág. 208

Social Media in Mexico



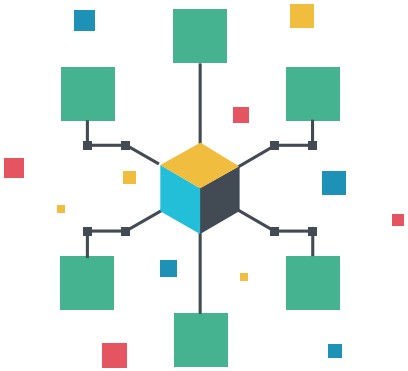
Blockchain technology

The use of blockchain technology in the public sector represents the possibility of providing highly secure and reliable digital services, at low cost, based on open technology, and a transparent process de facto for all participants; which significantly increases confidence in public institutions and effectively fights corruption.

The Digital Government Unit from the Ministry of Public Administration as responsible for promoting strategies and models of innovation in government management with the use of ICT, leads in collaboration with the Coordination of the National Digital Strategy, the creation of a Public Blockchain with the main goal of generating use cases of this technology in digital services.

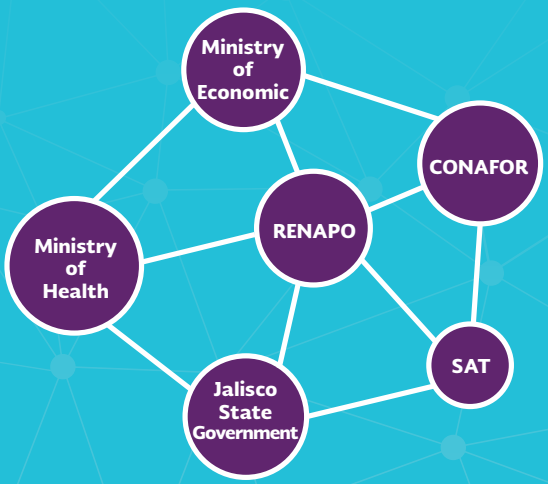
Blockchain HACKMX is an initiative of the National Digital Strategy and the Ministry of Public Administration, in collaboration with Campus Talent Mexico.

The main goal is to promote government digital innovation using emerging technologies to generate case studies within to improve the delivery of digital public services, and to escalate the benefits of digital government.



Digital Government Vertical

Talent Hackathon Campus Party MX 2017, launched the vertical on Digital Government, to encouraging the hackers to innovate public services, through challenges based in Blockchain Technologies.



Talent Hack - Agenda 5-9 July 2017

Day 01
Wednesday,
July, 5th

-Meeting with mentors
-Presentation of rules of procedures
-Presentation of Projects
-Coaching of impact

Day 02
Thursday
July, 6th

-First Level of impact evaluation
-Coaching of technical viability
-Second level of evaluation on **technical viability**

Day 03
Friday
July, 7th

-Coaching of technical development
-Third level of evaluation-**technical development**
-Coaching of the implementation

Day 04
Saturday
July, 8th

-Fourth Level of evaluation-**implementation**
-Final coaching
-Final of Goal

Day 05
Sunday
July, 9th

-Talent Hackathon Finale
-Award ceremony

Digital Ecosystem in Mexico

5 Government Institutions + Jalisco State Government

e.firma

Development of a functional prototype platform that integrates e.Firma and Blockchain to ensure the authentication, nonrepudiation, integrity and reliability of transactions for any signing act being performed.

Digital Identity

Designing a technological solution that allows full accreditation of identity of persons residing in the country and Mexicans living abroad, ensuring the authenticity of this by using the Blockchain technology, Unique Population Registry Code (CURP by its initials in spanish) and any of the three biometrics used by RENAPO.

Public property registry

Develop a functional prototype that integrates the Public Registry of Property and Commerce with Blockchain so that anyone can verify easily any available information about a property.

Certificates of deposit

Using technology as an enabler to build a solution to integrate Register of Certificates, warehouse and goods (RUCAM by its initials in spanish) with Blockchain to perform all transactions relating to the certificate of deposit and in turn verify the authenticity of the same.

Transactional transfers support

Development of a functional prototype using Blockchain to maintain the traceability of the information of the transactions of supports granted to a property or a beneficiary, over time, in order to identify the duplication of the supports that have been delivered.

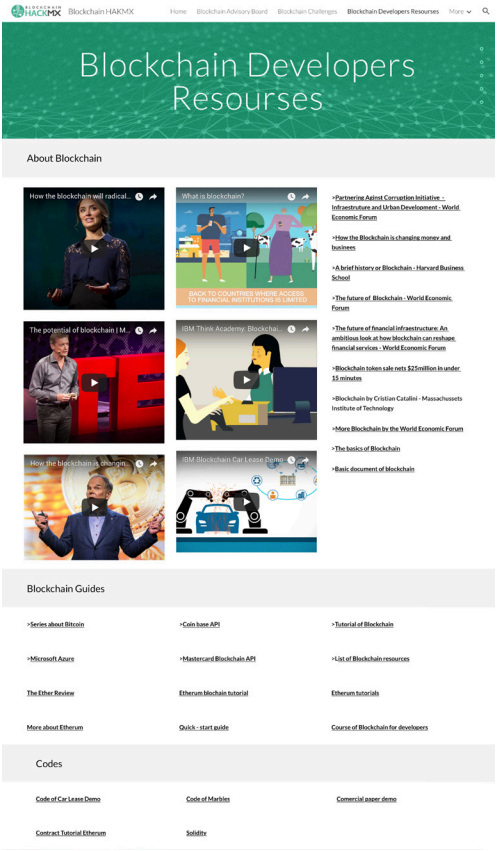
How we work?

In order to have guidance on blockchain technologies an *Advisory Board* was integrated with experts from the industry, civil society, academia and government.

Blockchain advisory board activities

Collaboration platform to follow up on challenges and materials by BAB

https://goo.gl/mLNhcm



Talent Hackathon

- Collaborate in the definition of the challenges
- Provide mentorship about Blockchain
- Participate as speakers at the Campus Party
- Participate as judge in the Digital Government Vertical finale

Public Blockchain Initiative

- Provide mentorship in the creation of the Mexican Blockchain
- Provide support in the generation of use cases

Digital Government Vertical Results

As a part of the Talent Hackathon of Campus Party 2017, the Ministry of Public Administration and the National Digital Strategy through the Digital Government Unit, participated with the Digital Government Vertical, with the objective of developing technological solutions based in Blockchain to answer specifics problems in the public sector of Mexico.

Results

20 teams participated in the Vertical

10 finalists

1 winner

"Tenders process"

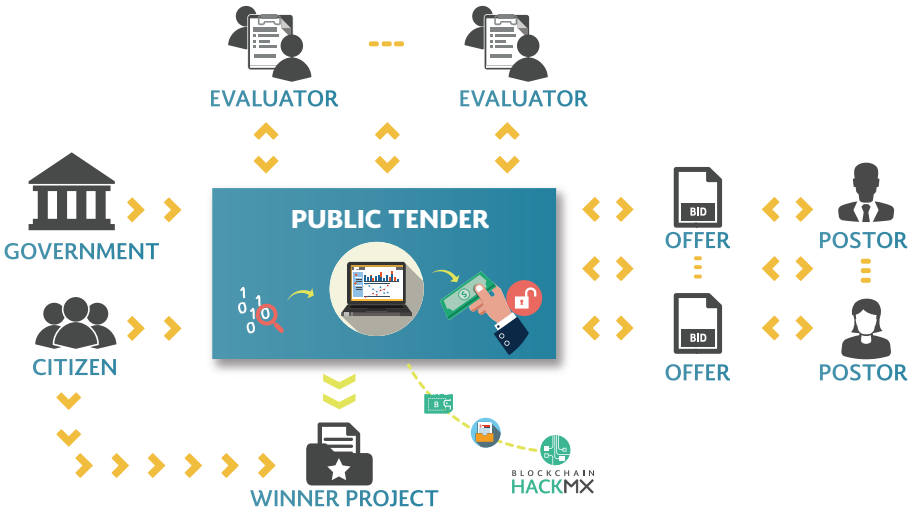
Digital Government Vertical Finalist teams

ID	ISSUES	TEAM
1	Asimov	Open challenge - Public tenders
2	ChainMex	Digital Identity
3	Prescrypto Team	Open challenge - Medical records
4	Monitor Ciudadano	Open challenge
5	Atenas	Digital Identity
6	ChainaTeam	Public Registry of Property and Commerce
7	BackUp	Digital Identity
8	SW-Team	Open challenge
9	iGob	Open challenge
10	Govy	Digital Identity

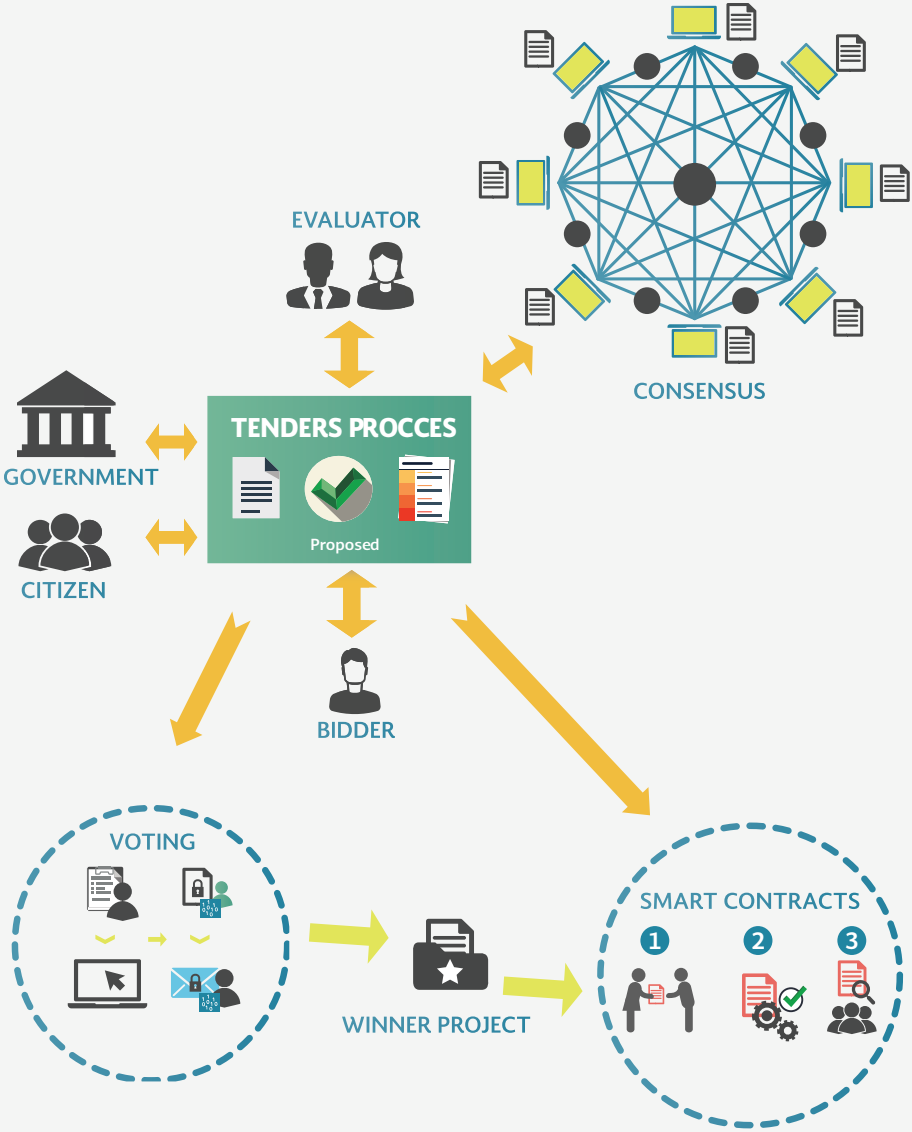
Digital Government Vertical winner

Tenders Process

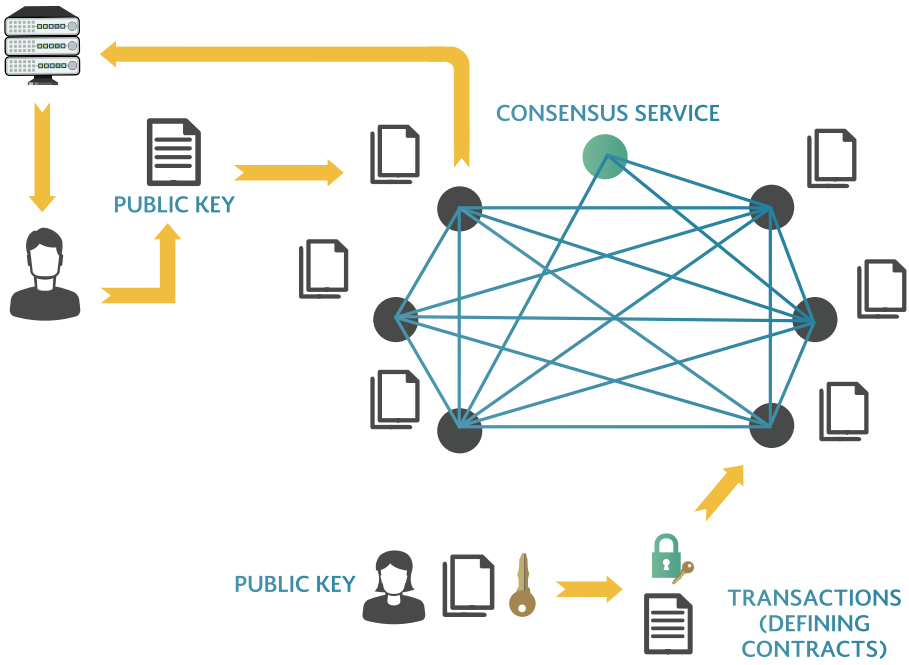
The winner project is a Blockchain system that allows the public tender process to be reliable, adding the factor of citizen participation and ensuring that the winner project of the process is the one that generates the greatest social benefit.



How Smart Tenders Work



Blockchain operation



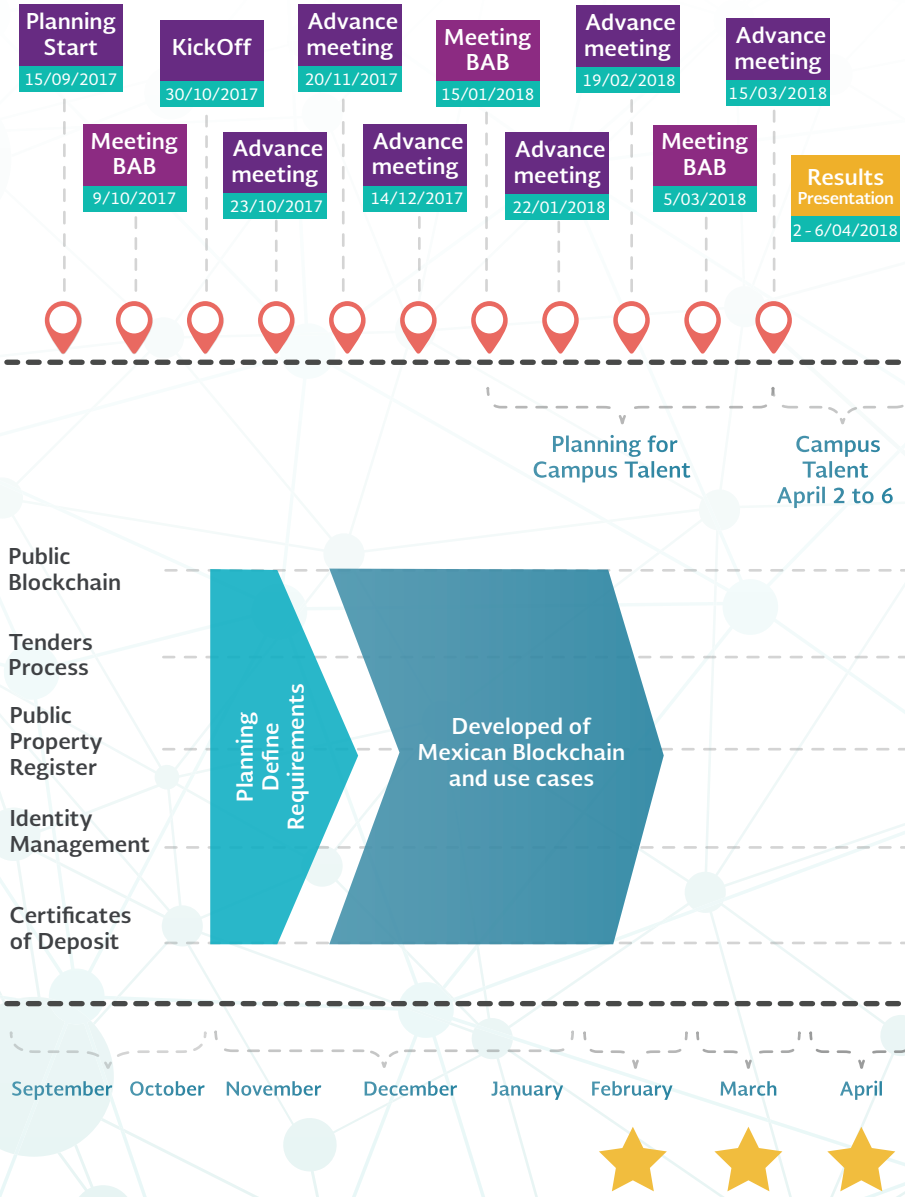
Mexican Blockchain Initiative

The objective of the initiative **is developing a Mexican Blockchain** to generate **use cases of Blockchain technology within the public sector.**

The cases to be developed in this initiatives are those projects that were executed under the Digital Government Vertical within the Talent Hackathon of Campus Party 2017 as part of the BlockchainHACKMX project.

- Tenders Process - Winner of the Digital Government Vertical
- Identity Management
- Certificates of Deposit
- Public Property Register

Implementation Roadmap



Tenders Process

- Smart Tender uses a hybrid Blockchain system to ensure that any registered citizen can participate in decisions that could affect them and to be able to vote at a local, state or federal level, and at the same time allows certified evaluators to vote and rate proposals anonymously, preventing companies from contacting them to influence their decisions.

- The importance of the Smart Tender system lies in the win-win solution, since the evaluators know that if the winning proposal does not meet the agreed expectations it will have repercussions on their reputation and their income will decrease.

- Citizens will always pursue the best proposal because at the final recipient of the benefits is the people themself.

Proposed blockchain supplier

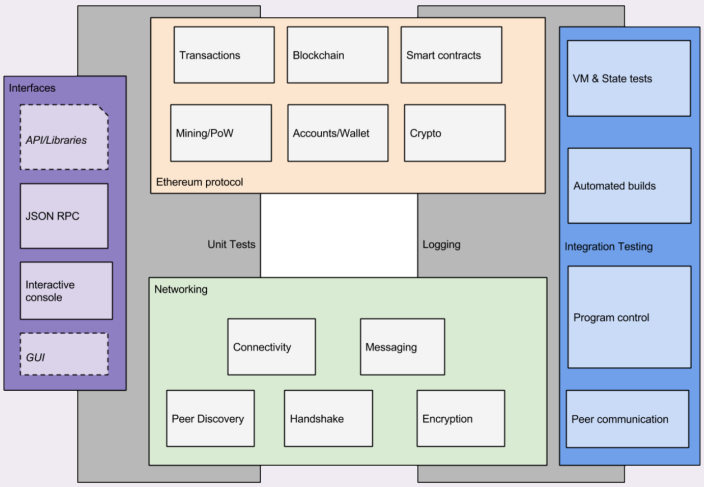
Ethereum offers the following services:

- Digital Coin (Ether)
- Smart Contract (Solidity)
- Decentralized applications (DApps)
- Distributed consensus model
- Consensus algorithm POW (Proof of work) and POS (Proof-of-stake)

Ethereum has the backing of Ethereum Foundation

Proposal

Ethereum works in a decentralized way through an Ethereum Virtual Machine (EVM) and its architecture is shown in the figure:



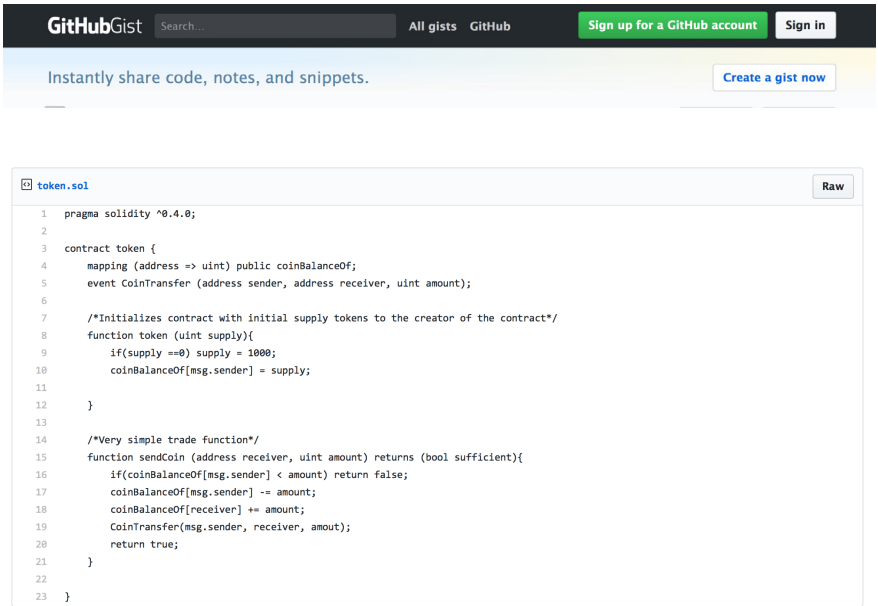
https://blog.ethereum.org

Smart Contracts

A contract is a collection of code (its functions) and data (its status) residing in a specific address in the Ethereum blockchain. Contract accounts are able to exchange messages between them, as well as do pretty much the entire Turing calculation.

The contracts live in blockchain in an Ethereum-specific binary format called bytecode from the Ethereum virtual machine bytecode (EVM).

Contracts are usually written in some high-level language like Solidity and then compiled into bytecode to load into blockchain.



https://gist.github.com

Solidity

Solidity is a high-level contract-oriented language whose syntax is similar to JavaScript and is designed to address the Ethereum virtual machine (EVM).

Solidity is statically typed, supports inheritance, libraries and complex user-defined types among other features.

Therefore, it is possible to create contracts for voting, crowdfunding, blind auctions, multi-signature wallets and more.

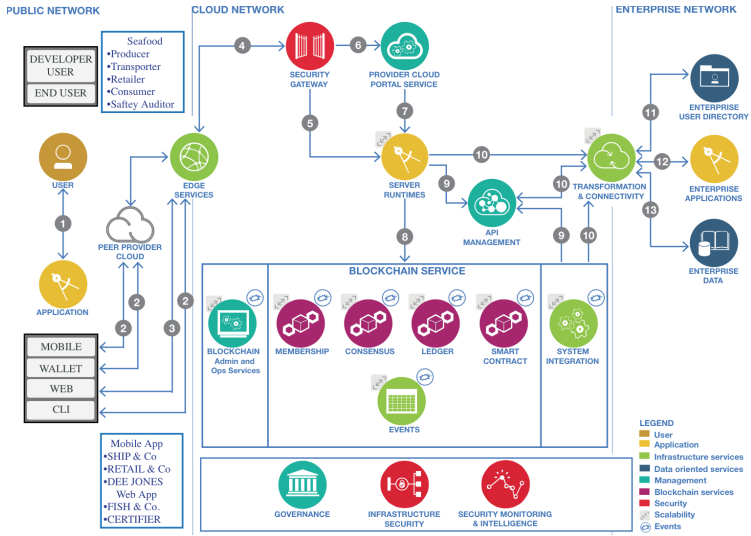
It is currently Ethereum's star language and the most popular.

Following projects

The Single Registry of Certificates, Warehouses and Merchandise (RUCAM, by its initials in spanish) is a public registry in charge of the Ministry of Economy (SE, by its initials in spanish) in which are registered the certificates of deposit and their pledge asset, as well as the own warehouses or authorized warehouses of the General Deposit Stores.

Using blockchain contributes to:

- Eliminate the need to store, transport and track the physical documents that are generated.
- Make easier to determine who owns the rights certificates at a specific time.
- Perform transactions and real-time recording of certificate operations.
- Almost no chance of working with fake or altered documents
- Eliminate physical endorsement of certificates
- Eliminate the need to constantly replicate the information within the different databases of the authorities
- Increase transparency in the registration of goods and certificates.



https://www.ibm.com

Blockchain Technology in the Global Value Chains

The Ministry of Economy is seeking that enterprises established in Mexico use and adopt the Blockchain Technology in their global value chains; starting with the automotive sector as a pilot.

In this sense, the Ministry of Economy was able to identify the bottlenecks on the automotive and auto parts supply chain, with this information and the use and adoption of Blockchain technology, the companies will be able to align the operation between each link of the supply chain, obtain a positive impact in costs and achieve a greater competitive industry.

Solidity

Achieve the registration of all citizens and allow the full accreditation of identity of persons residing in the national territory and of Mexicans residing abroad, ensuring the authentication of the same through Blockchain technology, Unique Population Registry Code (CURP) and any of the three biometrics used by RENAPO.

2nd
ChainMex

3rd
Prescrypto

Create a public repository of electronic medical prescriptions with blockchain technology.

Provide information about candidates for popular election positions to voters, about their career, their performance, work, results and the perception of the people of the same, through the analysis of publications in their social networks.

4rd
Citizen supervisor

5th
Atenas

A unique and secure remote identification method based on Blockchain to generate an unalterable and single identification number number combined with two step verification using information collected by the government to verify the identity of the user.

Authenticate a document issued by the State of Jalisco Public Registry of Property and Commerce (RPPyC, by its initials in spanish) through a mobile application or citizen portal by consulting the *Folio Real* (property registration document), date and priority, and it will return the registered basic data of the property as well as the general data of the Source Documenting Process (SDP), so it can validate that the information that has the physical document corresponding to the one that is registered in the RPPyC.

6th
Chinateam

7th
Back up

BackUp is a digital platform that safeguards official identity data, so that once they are validated by third parties: relatives, private or governmental entities, may be used to data exchange.

Using Blockchain technology, it will be possible to keep a unique, unalterable identity registry for people found guilty of a crime.

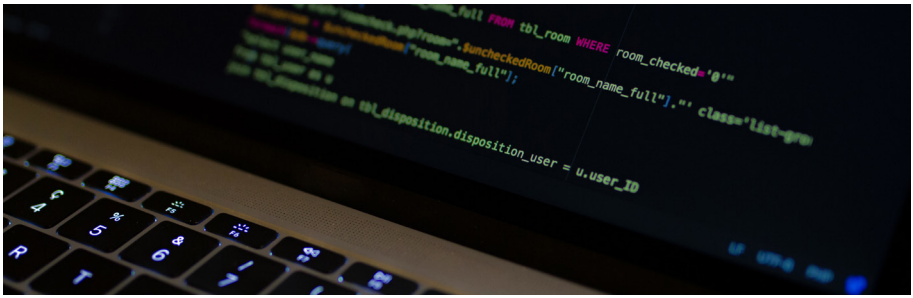
8th
Sw-Team

9th
iGob

Develop a social management app based on Blockchain Technology that links to a web platform and allows generating a pattern of beneficiaries of social support programs.

Generate a single digital identity for Mexicans administered with Blockchain through an application.

10th
Govy



BLOCKCHAIN
HACKMX

MÉXICO

PRESIDENCIA DE LA REPÚBLICA