Blockchain and Financial Market Infrastructure

November 22nd 2018, Athens

Nicolò Romani / Head of Innovation

About SIA

Founded in July 1977

Revenues: €567.2m (in 2017)
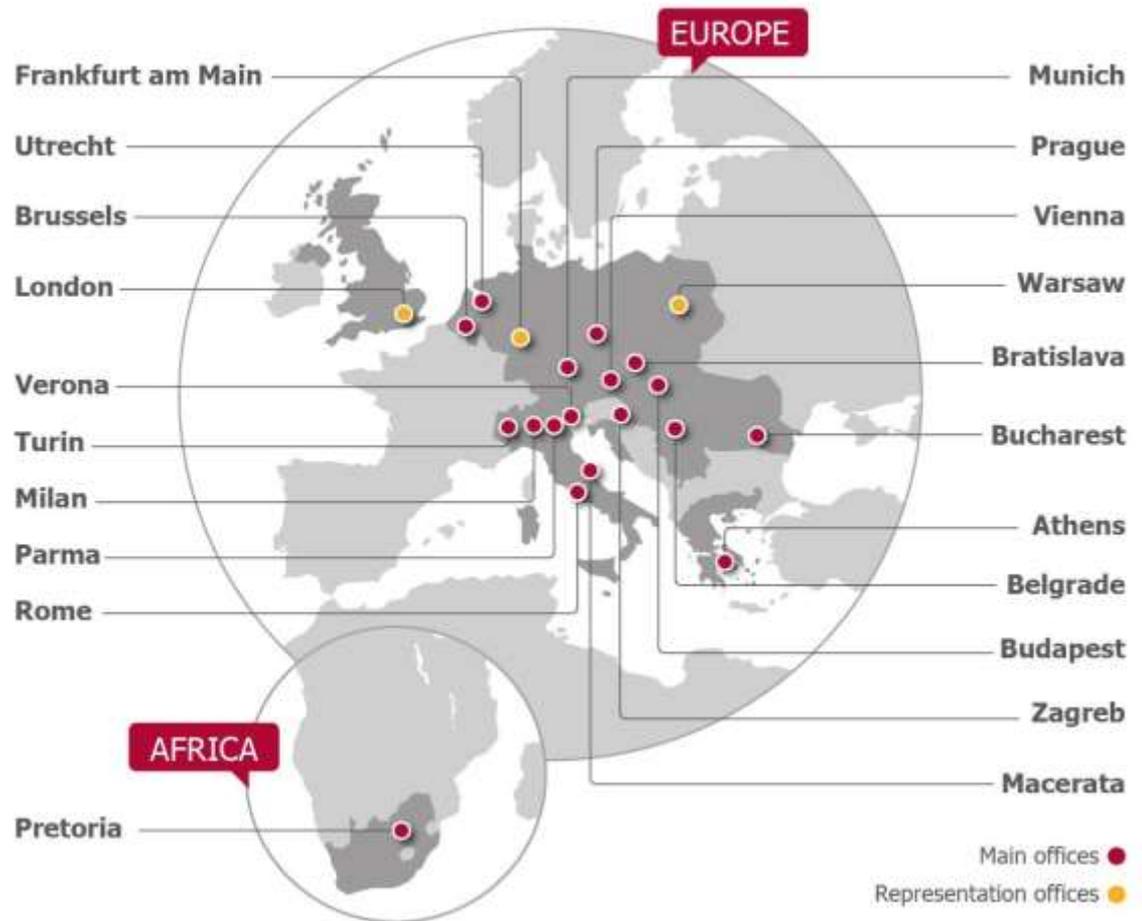
Serves clients in more than 50 countries

European leader in the areas of payments, cards, network services and capital markets

Around 3,500 Group employees

EUROPE

Frankfurt am Main — — Munich

Utrecht — — Prague

Brussels — — Vienna

London — — Warsaw

Verona — — Bratislava

Turin — — Bucharest

Milan — — Athens

Parma — — Belgrade

Rome — — Budapest

— Zagreb

— Macerata

AFRICA

Pretoria —

Main offices ●
Representation offices ●

The blockchain: a wave of innovation spreading all over Europe

350+ PROJECTS MAPPED IN EUROPE AS AT OCTOBER 2018

A FAST GROWING MARKET
Values in $Bn

EUROPE

CAGR 72%

0,4 (2018) → 3,5 (2022)
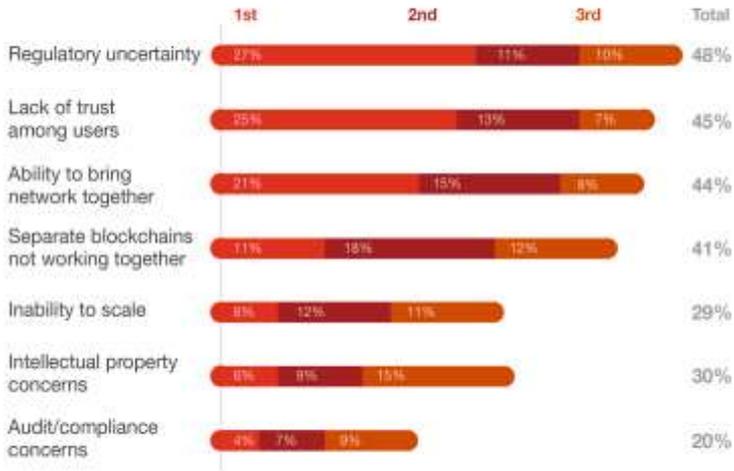
WORLD

CAGR 67%

1,5 (2018) → 11,7 (2022)
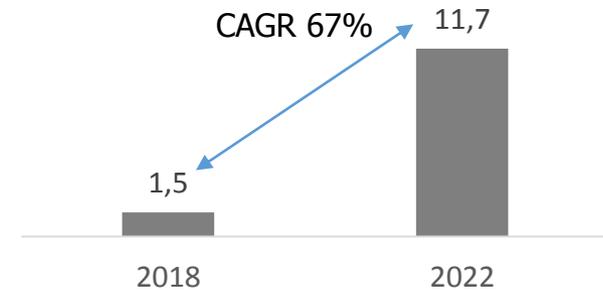
- US is the n°1 market (36% of total); EU is ranked 2nd
- Financial services have the lion's share at 0,6 Bn$ in 2018

The trust paradox of blockchain

The biggest barriers to blockchain adoption

Percentage of respondents ranking top three barriers to blockchain adoption

	1st	2nd	3rd	Total
Regulatory uncertainty	27%	11%	10%	48%
Lack of trust among users	25%	13%	7%	45%
Ability to bring network together	21%	15%	8%	44%
Separate blockchains not working together	11%	18%	12%	41%
Inability to scale	8%	12%	11%	29%
Intellectual property concerns	6%	9%	15%	30%
Audit/compliance concerns	4%	7%	9%	20%

Note: Base: 600.
Q: Which of the following will be the biggest barriers to blockchain adoption in your industry in the next three to five years?
Source: PwC Global Blockchain survey; 2018

Companies must confront blockchain's **trust paradox:** a technology designed to foster trust is being held back by trust issues

Lack of confidence in complex tech	Distrust of ecosystem partners
Limited understanding of blockchain	Discomfort over regulatory uncertainty

SIA is tackling the challenge by building **SIAchain**: a private blockchain/DLT structure

SIAchain: a multiplatform permissioned blockchain structure for the financial ecosystem

SIAchain is the private, multiplatform, geographically distributed (one node for each customer) blockchain structure built by SIA to fulfil the requirements of the most demanding applications

SIA CHAIN

THE ASSETS

A 40+ years of history as a technology enabler and network operator for the Finance industry (EuroMTS, STEP2, EBA Clearing)

The largest high security / high availability European private network with guaranteed SLAs and interoperable with external networks
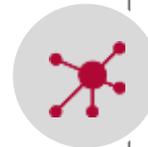
Regulatory compliance "by design" being supervised by Bank of Italy and European Central Bank

THE SERVICE MODEL

Supernode resting on Client's premises (or SIA private cloud) leveraging the geographically distributed private network SIAnet

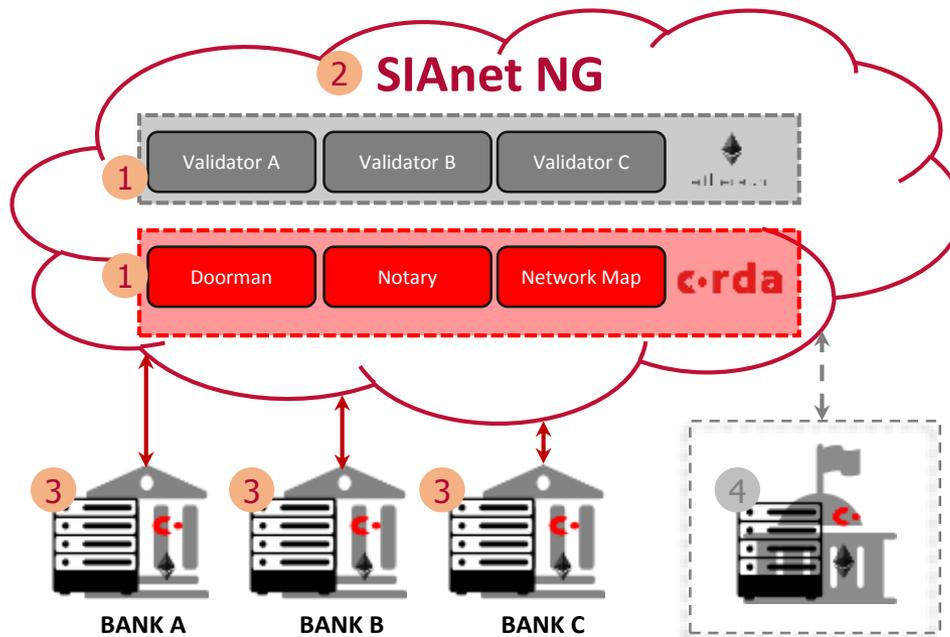Ability to deploy different architectures according to the specific Business Network requirements

Strong synergy with blockchain platform vendors

1. Support services for Blockchains (Central Network Services) including participants identification, consensus and transaction validation
2. Multi-carrier SIANet network
3. Supernodes installed at Banks premises, on which are installed the different blockchain clients (Corda, Ethereum, …)
4. If required for auditing purposes, a Supernode can be installed at a relevant Authority premises

The assets: 40+ years as an European leader in Capital Market and Payments

From a domestic, consortium-type service provider....

...to an international player with operations in 14 countries and customers in 48 countries

THE 80s:

Development of the Italian National Interbank Network (RNI)

- Interconnection of all the Italian financial institutions

- Automation of the interbank payment system

- Creation of the Italian ATM circuit Bancomat

TODAY:

A leading international player

At the core of the European financial ecosystem

CAPITAL MARKETS

- 44 Trading Venues and 574 customers connected to the Financial Ring

- 18 financial markets served by **EUROMTS** platform

ACH

- 4,800 EBA STEP2 participants

- 1,043 SEPA Instant Credit Transfer participants

40% of all SCT

RTGS

- 19 Central Banks adopt SIA solutions

All of them relying on **SIANet:** the largest European private network for financial services

The assets: SIAnet, born to support mission critical services for the financial system

SIAnet multi-layer architecture integrates the networks of the main carriers with the best network technology, chosen from a portfolio of preferred partners, and is completed with the messaging services provided by SIA

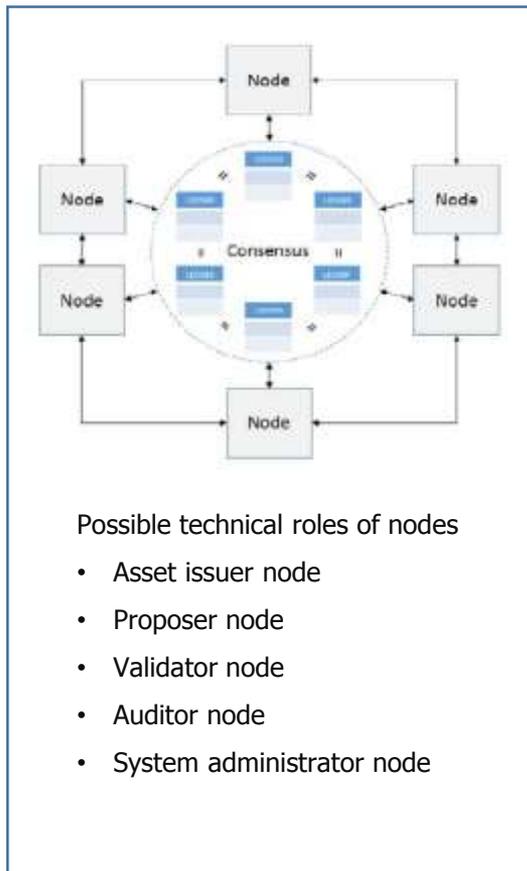
International presence

580 SIAnet network plants

multi-layer architecture

multi-carrier and multi protocol

- Access to T2S (SIA-Colt T2S VANSP)
- Access as NSP to EBA STEP2 clearing platform
- Access to trading venues as Certified NSP

- Access to EUREX Clearing for Central Counterparty (CCP)
- Infrastructure for Instant Payments

SIAchain is designed to support distributed applications in permissioned networks

Possible technical roles of nodes

- Asset issuer node
- Proposer node
- Validator node
- Auditor node
- System administrator node

	Siloed Applications over Private/Permissioned Blockhain/DLT	Distributed Applications over Private/Permissioned Blockhain/DLT **SIA** CHAIN		Public/ Permissionless Blockhain/DLT
LEDGER UPDATING	**Single entity**	**Approved entities** with **distinct restricted roles**	**Approved entities**; entities can play **any role**	**Any entity** can access and play **any role**
OPERATIONS OF THE SERVICE	Single entity	Multiple entities		
ACCESS TO THE SERVICE	Restricted			Unrestricted
TECHNICAL ROLE OF NODES	Differentiated		Not differentiated	
VALIDATION AND CONSENSUS	Single entity	Single entity or across multiple entities	Across multiple entities	

The evolution of SIAchain to support Financial Market Infrastructures

THE FEATURES OF AN FMI*

AGREEMENT	Explicit agreement among the Business Network of FMI participants	SIA is actively working with all the relevant counterparties to ensure SIAchain readiness to fulfill FMI requirements
RULES	Set of accepted and legally-binding rules	
GOVERNANCE	Roles and responsibilities are clearly defined	
SUPERVISION AND OVERSIGHT	The FMI is subject to supervision and oversight by a relevant Authority	
TECHNICAL STRUCTURE	All the FMI participants share the same technical structure	
RISK MANAGEMENT	Risk assessment is constantly performed and mitigation measures are put in place	

*__BANK FOR INTERNATIONAL SETTLEMENT -__ Committee on Payment and Settlement Systems -Technical Committee of the International Organization of Securities Commissions
__Principles for financial market infrastructures -__ April 2012

An effective governance structure allows a clear definition of roles and responsibilities

BNG
Business Network Governor

Defines participation rules and application requirements and is the owner of contracts and IP

sia / OTHER

BND
Business Network Designer

Develops the application and performs application maintenance

sia / OTHER

BNO
Business Network Operator

Builds and manage the blockchain technical structure and acts as a SPOC for operations

sia

A structured approach to regulatory issues mitigates the risks of non-compliance

BLOCKCHAIN INNOVATION IN EUROPE

A thematic report by the European blockchain observatory and forum
August, 21 - 2018

First and foremost, Europe needs to clarify the legal and regulatory framework. Top of the list is resolving the tensions between GDPR and blockchain. The legal, fiscal and accounting status of tokens must be clarified as well, along with the rules surrounding the exchange of cryptoassets and fiat money.

SIA faces the regulatory uncertainty in two ways

1) Through the continuous interactions with the regulatory bodies because of its status as a supervised entity

2) By the participation in the FINSEC project

- FINSEC is a three years project involving 21 partners from 10 countries that aims at introduce, implement and validate a novel reference architecture for **integrated physical and cyber security of critical financial infrastructures**

- Within the project scope **SIA is leader for peer-to-peer payments over blockchain**

- A proactive interaction with the regulatory bodies during the requirement definition phase **will ensure the full adequacy of SIAchain** in order to manage payments transaction in full compliance with regulations and mandatory requirements

SIAchain in real life: the «Spunta» project

- "Spunta" is the DLT-based solution to simplify and automate the reconciliation of interbank operations

- The project is sponsored by the Italian Banking Association and managed by the ABILAB consortium as the Business Network Governor

- SIA is the Business Network Operator while NTT Data is the Business Network Designer

- The application has successfully passed the test phase, which involved 14 banks, and activities are ongoing to move it to the full production phase for all the Italian banking system

BANKS PARTICIPATING IN THE PILOT PHASE