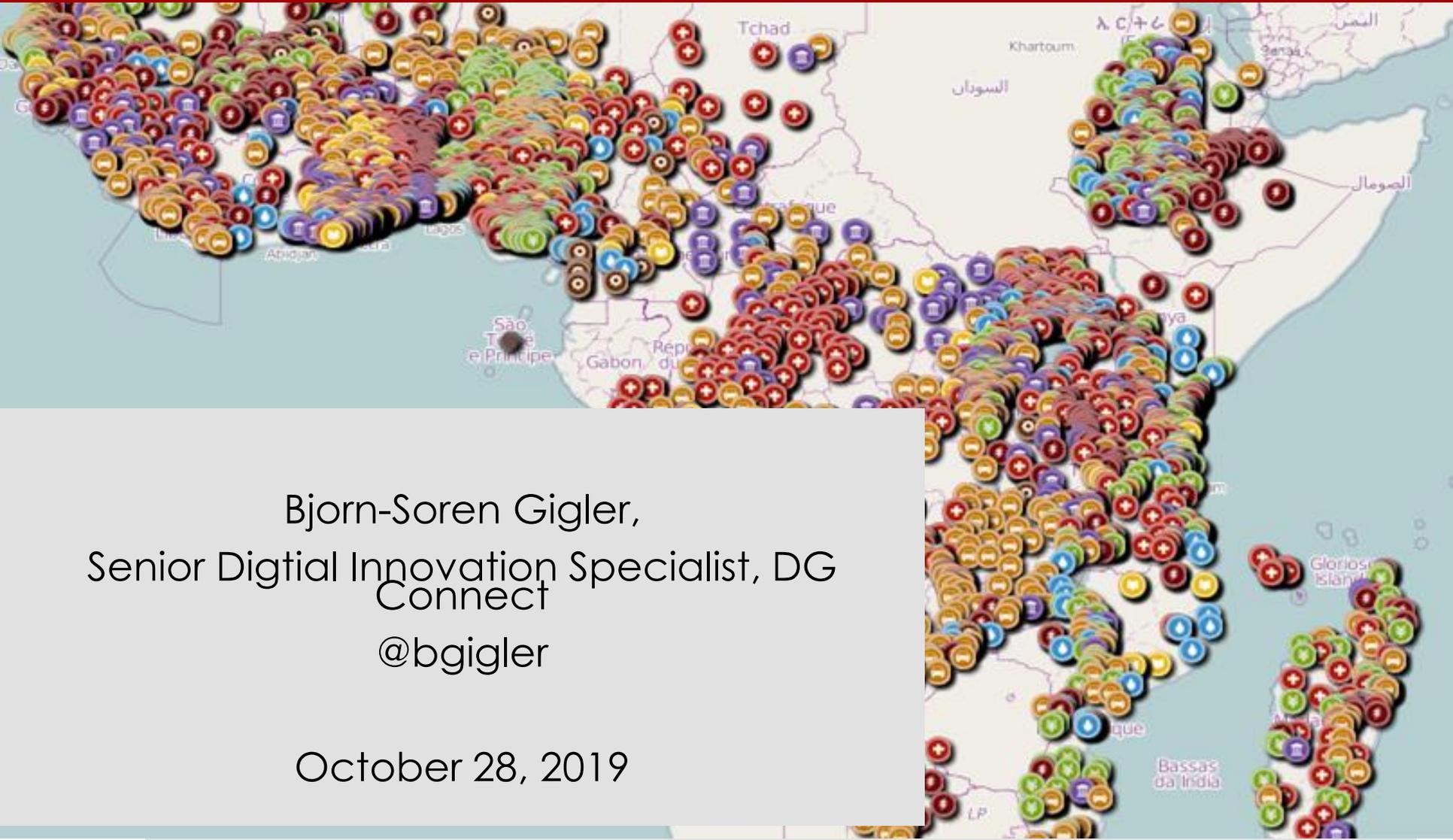


Digital Innovations

Empowering digital ecosystems and startups



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Connect
@bgigler

October 28, 2019

Key Issues:

Empowering deep tech start-ups and traditional SMEs

Digitalisation for what and for whom?

How can we address the regional inequalities between different regions in Europe?

How can we empower future-oriented and innovative deep tech companies?

How to bridge the emerging gap between high-tech clusters and traditional sectors?

What financial innovations are needed to enable digital innovations?

How can we remain competitive in a globalized world? (US, Asia)

What are key challenges for fostering local and regional innovation ecosystems?

Disruptive Technologies as key enablers for change



Benefiting from Disruptive Technologies

Key drivers of societal and economic change

Deriving real benefits for society from AI and blockchain

Towards an inclusive digital Transformation



Fostering Digital Transformation

Address the Knowledge and Time Gaps

Promote Digital Inclusion and Digital Skills

Enable Technology and Skill Transfers



Empowering Start-ups and Innovative SMEs

Fostering an Enabling Environment

Enhancing access to finance throughout entire Innovation Cycle

From Technology Readiness to Market Readiness

From ideation and incubation to scale up and mainstreaming



Digitalisation of SMEs

DIHs as a key enabler for digital transformation

Clearly define the objectives of digitalisation projects

Raising the awareness of SMEs about the important opportunities of digitalisation programs

Addressing the Knowledge, Capacity and Skills Gap

Adoption of digital innovations into existing business models and processes requires institutional and culture change

Importance to maintain global competitiveness and to penetrate new markets (Digital Transformation)

Large demand from smaller SMEs in traditional sectors and with low investments

DIHs role in connecting digital innovations with traditional sectors

Dedicated financial instrument needed to fit the specific needs for digitalisation of traditional SMEs

Startup Europe at a glance (1 of 3)

- is an initiative of the European Commission
- encourages entrepreneurship, startup creation and growth notably in Deep Tech verticals (AI, IOT, HPC, blockchain)
- connects startups, investors, accelerators, entrepreneurs, corporate networks, universities and the media through an array of [networks](#).
- connects local [startup ecosystems](#) around Europe and enhance their capacity to invest in other markets
- celebrates the European entrepreneurs' success

Startup Europe at a glance (2 of 3)

fund projects via EU
research and
Innovation programme
H2020

support grassroots
initiatives

*collaborates with startup
friendly networks*

... all grouped under....

<http://startupeuropeclub.eu/>

**STARTUP
EUROPE**



The
**ONE
STOP
SHOP**

ABOUT US

SE AMBASSADORS

FOR STARTUPS

FOR STAKEHOLDERS

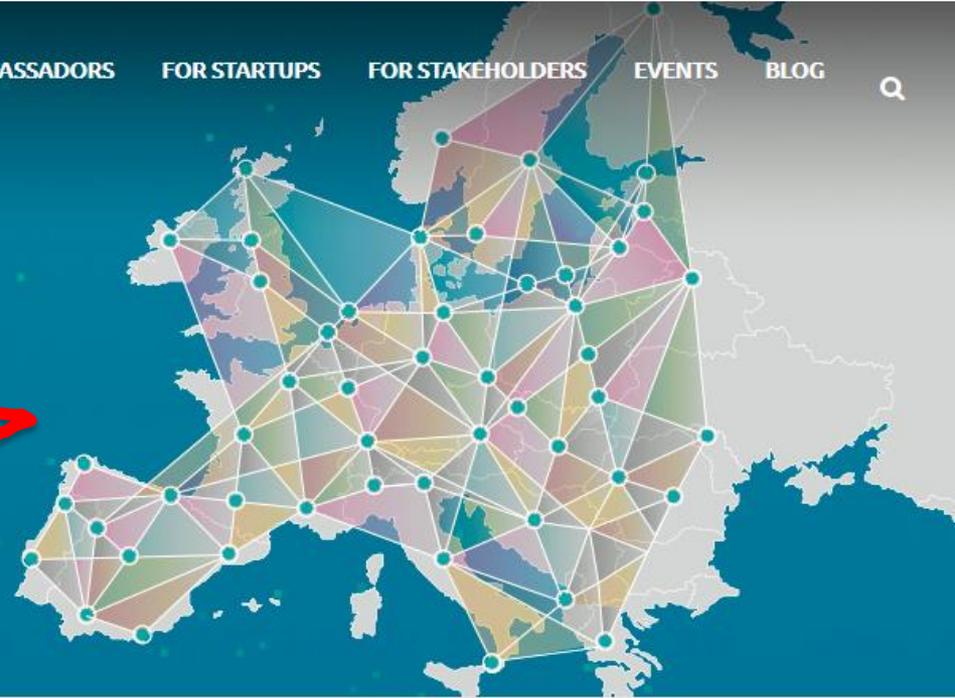
EVENTS

BLOG



WELCOME TO STARTUP EUROPE THE ONE STOP SHOP

CONNECTING LOCAL ECOSYSTEMS



ARE YOU A STARTUP?



**ARE YOU AN
ECOSYSTEM BUILDER?**

Blockchain is much more than "crypto coins"

Distributed Ledger Technologies (DLT) offer alternatives away from data silos (Google, Facebook, Microsoft ...) and have the potential to significantly improve or entirely re-think existing enterprise solutions for:

- 1 Supply Chain Management
- 2 Payments & Capital Markets Infrastructures
- 3 Agriculture (eg.: authenticating origins of food)
- 4 Energy (eg.: P2P Trading of renewable electricity)
- 5 Health (eg.: data aggregation for research)
- 6 Public sector (e-voting, real time digital reporting etc)
- 7 Tools for fighting hacking & cyber crimes

... and much more.

1

EU BLOCKCHAIN OBSERVATORY (02/2018 -)

- Workshops: 6 since 02/2018 + 12 more to come
- Mapping: 550+ projects identified
- Knowledge building and sharing



2

EUROPEAN BLOCKCHAIN PARTNERSHIP: (04/2018 -) *see next slide*



Blockchain Partnership
Initiative

3

R&D Support: Leveraging H 2020 funds for EU Blockchain initiatives Standardisation of Blockchain / DLT : Participation in ICO TC 307

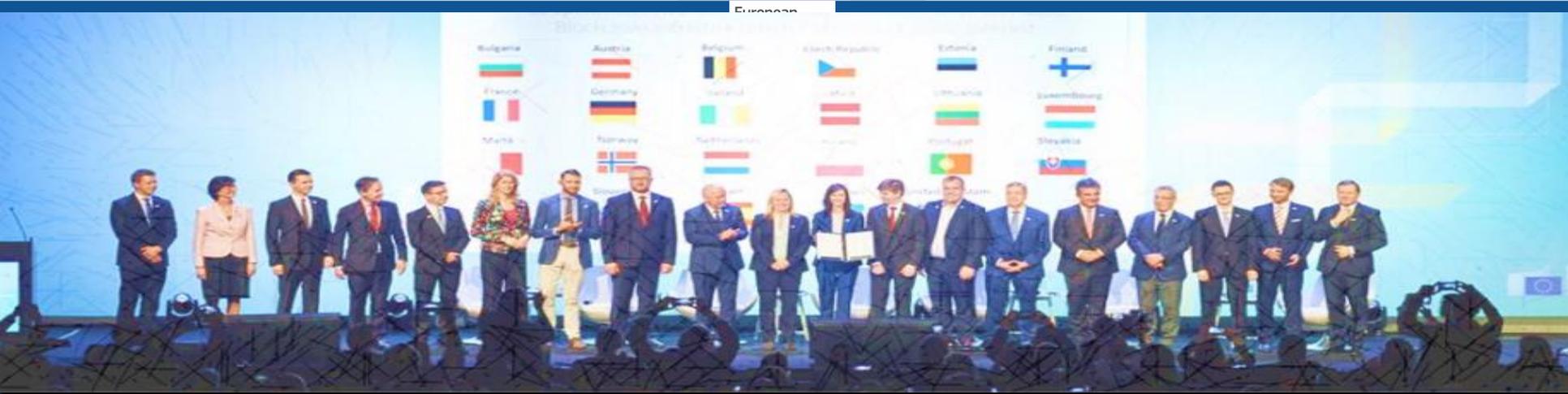
4

INTERNATIONAL ASSOCIATION FOR TRUSTED BLOCKCHAIN APPLICATIONS (03/2018)

Modelled after ICANN for the www, the INATBA will promote ...

- Convergence of regulatory approaches
- Open transparent governance
- Interoperability and standardisation, sectoral specifications





EUROPEAN BLOCKCHAIN PARTNERSHIP

- 26 Member States + Norway , Liechtenstein agree that Blockchain/DLT is an important technology. They cooperate with one another since April 2018. DG CONNECT and DIGIT facilitate their cooperation. Together they develop European Blockchain Services Infrastructures:
- **EUROPEAN BLOCKCHAIN SERVICES INFRASTRUCTURE** (EBSI) will support delivery of cross-border digital public services with the highest standards of security and privacy. First 4 use cases and functionalities:
 1. **DOCUMENTS EXCHANGED BETWEEN NATIONAL ADMINISTRATIONS: NOTARISATION AND TIME STAMPING**
 2. **NATIONAL CUSTOMS DATA REGISTRIES: SHARED ACCESS AMONGST GOVERNMENT ADMINISTRATIONS**
 3. **EDUCATION ACADEMIC QUALIFICATIONS: NOTORISATION AND AUTHENTICATION ACROSS-BORDERS**
 4. **SHARED E-IDENTIFICATION MECHANISM: SELF SOVEREIGN IDENTITY - ESSIF / EIDAS**



Why Blockchain?

- *New paradigms and collaborative models in the digital economy (more trust)*
- *Transformative capacities (e.g. disintermediation, tokenisation)*
- *Potential alternative model to dominant platforms (decentralisation)*
- *Higher quality and efficiency (e.g. data integrity, traceability)*
- *New opportunities that Europe must seize NOW*
- *Role for public bodies and the private sector*



European Blockchain Partnership

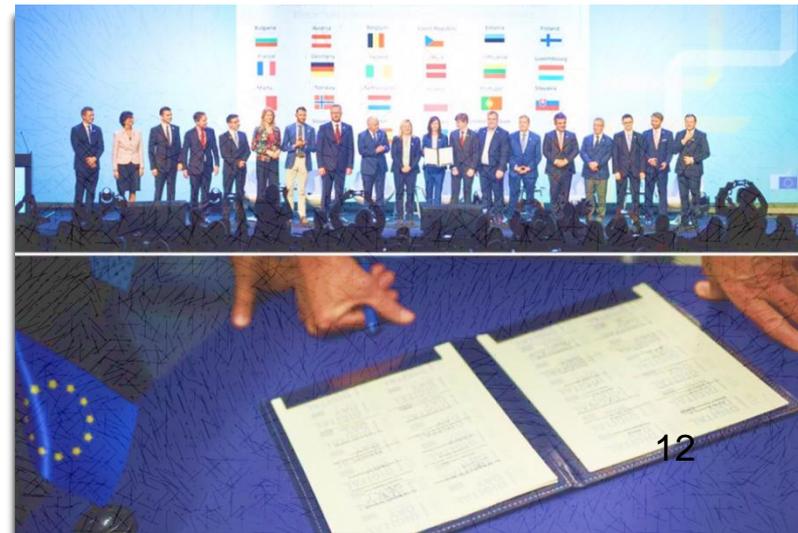
28 countries, including Norway and Liechtenstein, to cooperate towards a European blockchain Services Infrastructure (EBSI): focus on cross border public services first

- ✓ **Uses cases identified (Common registers / excise exchange in Europe, Notarisation of documents; Diplomas)**
- ✓ **European Self Sovereign Identity – eSSIF / eIDAS**
- ✓ **Infrastructure (Guiding principles addressed by EBP)**

Agreement on

- ✓ **Governance**
- ✓ **Define joint specifications**
- ✓ **Implementation through EU programmes in 2019-2020**

Exchange of experiences, dialogue on regulatory / legal aspects



Focus Blockchain Stakeholders



**An observatory,
a forum, an online
and offline platform,
8 workshops organised,
10 to come, 600+ projects, training and
1400+ active EU Blockchain community**



#EUBlockchain

EU BLOCKCHAIN OBSERVATORY & FORUM



INTERNATIONAL ASSOCIATION OF **TRUSTED BLOCKCHAIN** APPLICATIONS



Focus Blockchain

INATBA mandate



The **IN**ternational **A**ssociation for **T**rusted **B**lockchain **A**pplications is an **open** and **inclusive multi-stakeholders** organisation, created in **Europe**, Belgium, bringing together all stakeholders committed to **promote interoperability, transparent governance, legal certainty and trust** in services enabled by blockchain and DLT, **worldwide**, through continued collaboration and openness.

INATBA is bringing together members to develop open, transparent & inclusive **governance** model; **Interoperability** of DLT/Blockchains; Sector-specific **specifications** & promote convergence of policy by establishing a **regulatory dialogues** between industry&public authorities at global level.

1st World Blockchain Congress in Malaga, 11-13 Nov 2019

Focus Blockchain INATBA establishment

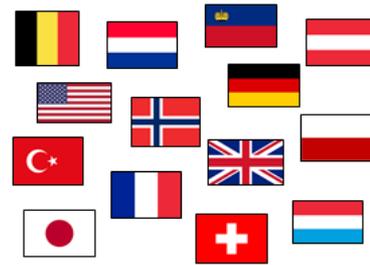


European
Commission

INATBA

International Association for
Trusted Blockchain Applications

- ✓ **105 founding members on 6th March 2019**
- ✓ **From 28 countries**
- ✓ **Over 4 continents**
- ✓ **ICANN-style ambitions**
- ✓ **Official launch (today!) in Brussels**
- ✓ **Brand new Board of Directors and testimonials**
- ✓ **Become a member? Join @ membership@inatba.org**
- ✓ **More info <https://www.inatba.org/>**



105 INATBA Founding Members

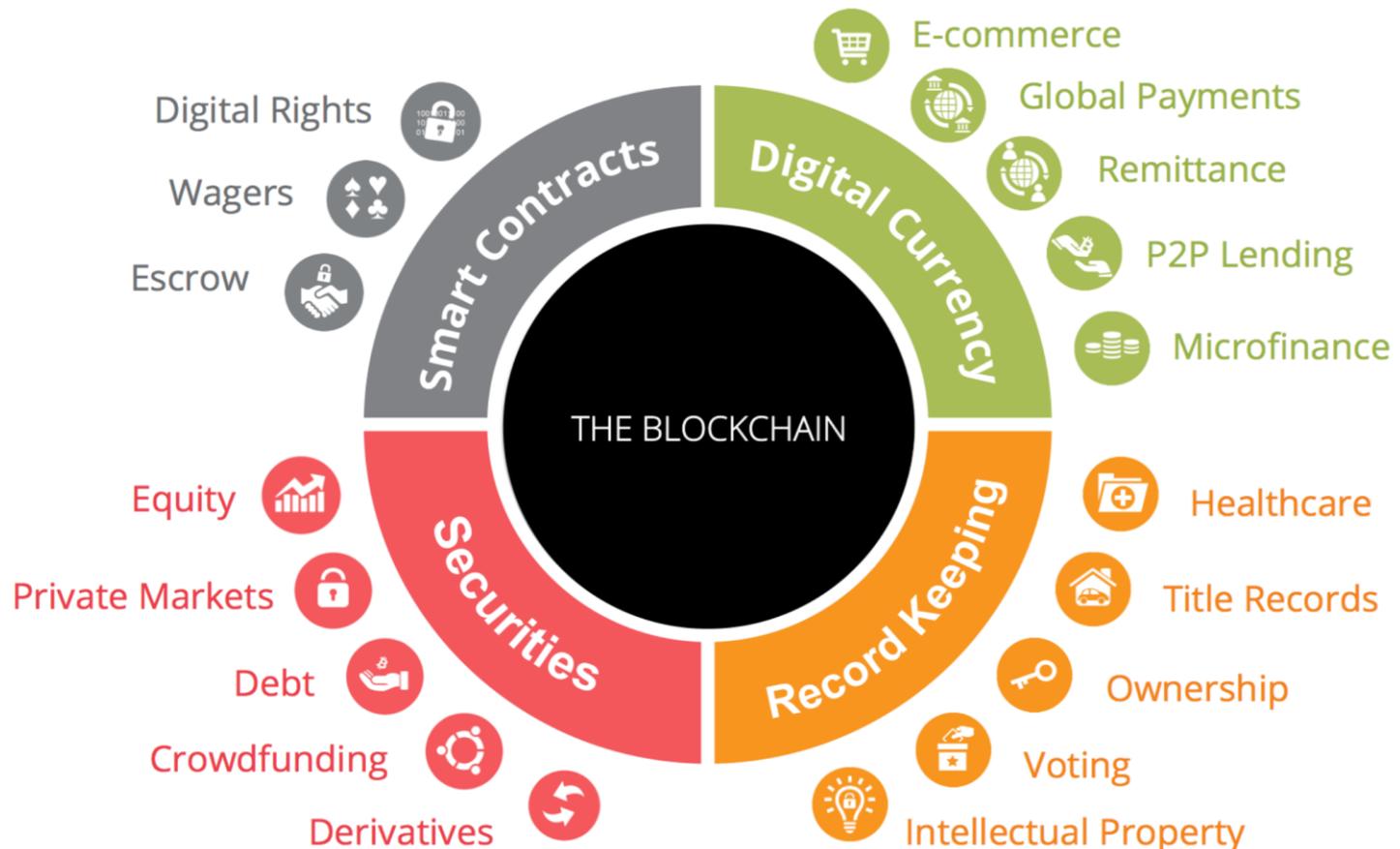


■ Micro
■ Small
■ Medium
■ Large
■ Not Profit



Blockchain Potential Applications & Disruption

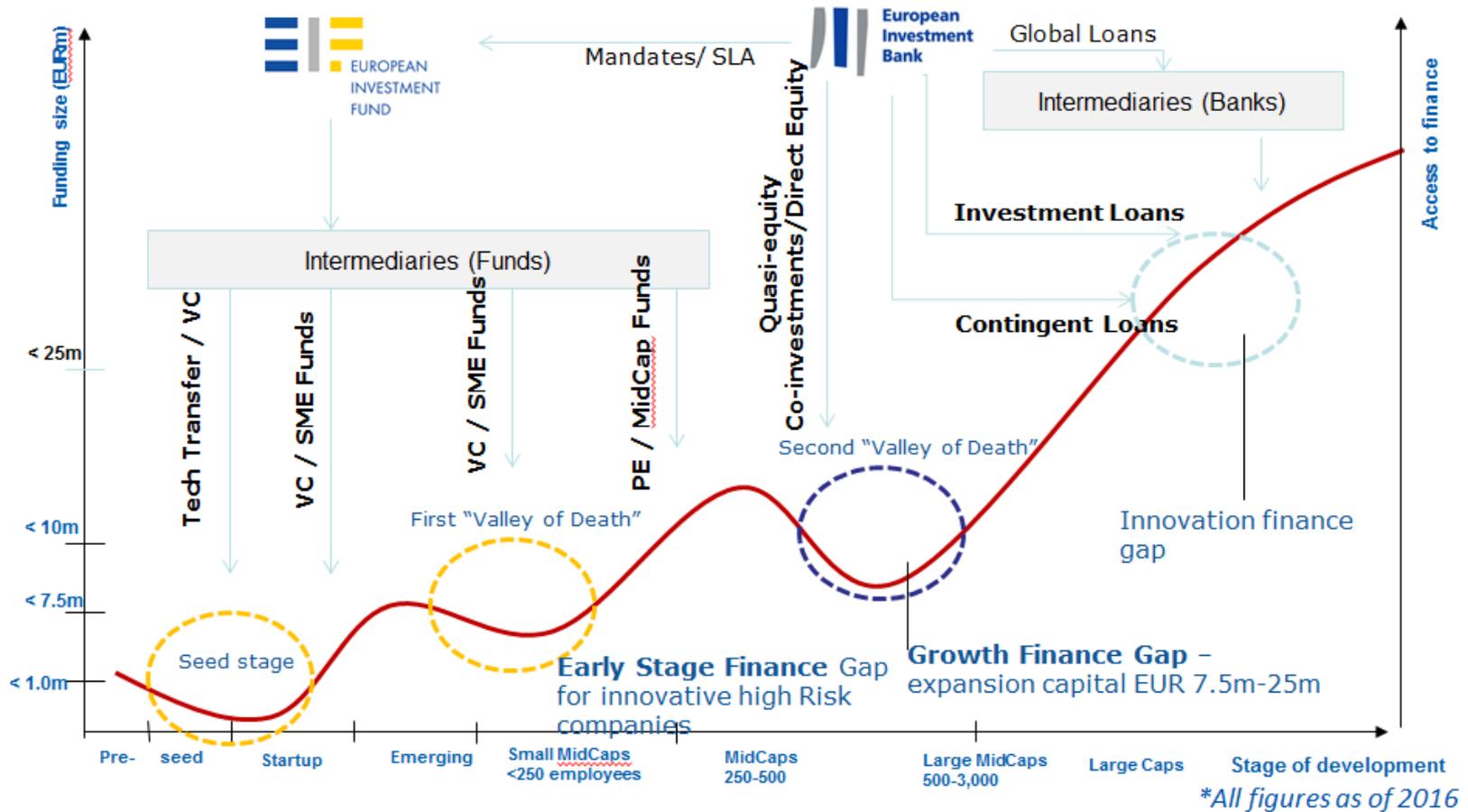
The blockchain is radically changing the future of transaction based industries



Source: IBM, Making Blockchain Real for Businesses, 2015



Funding Gaps for Innovative R&D intensive companies

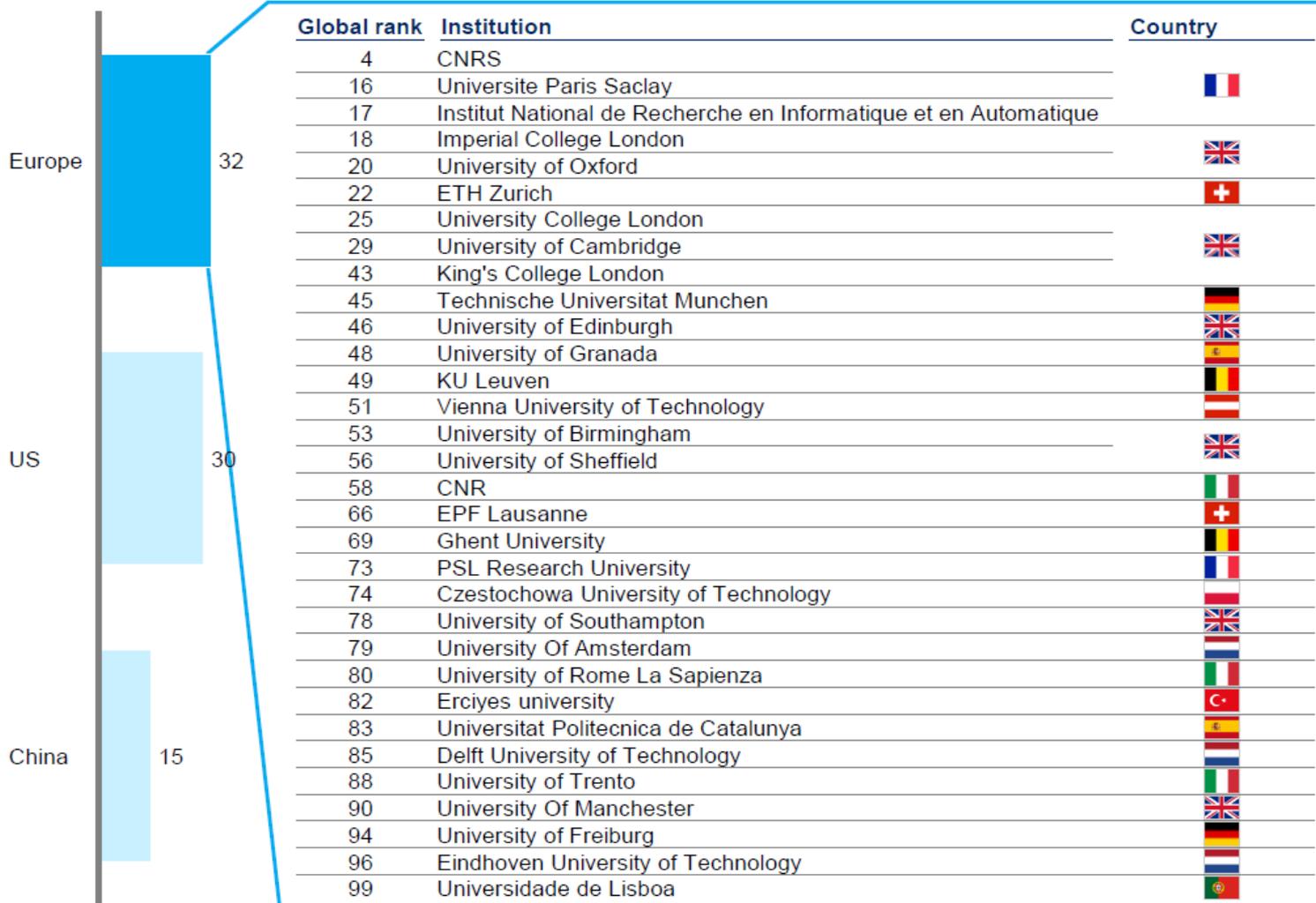


Source: Innovative Finance Advisory Services, EIB

The EU has strong digital capabilities

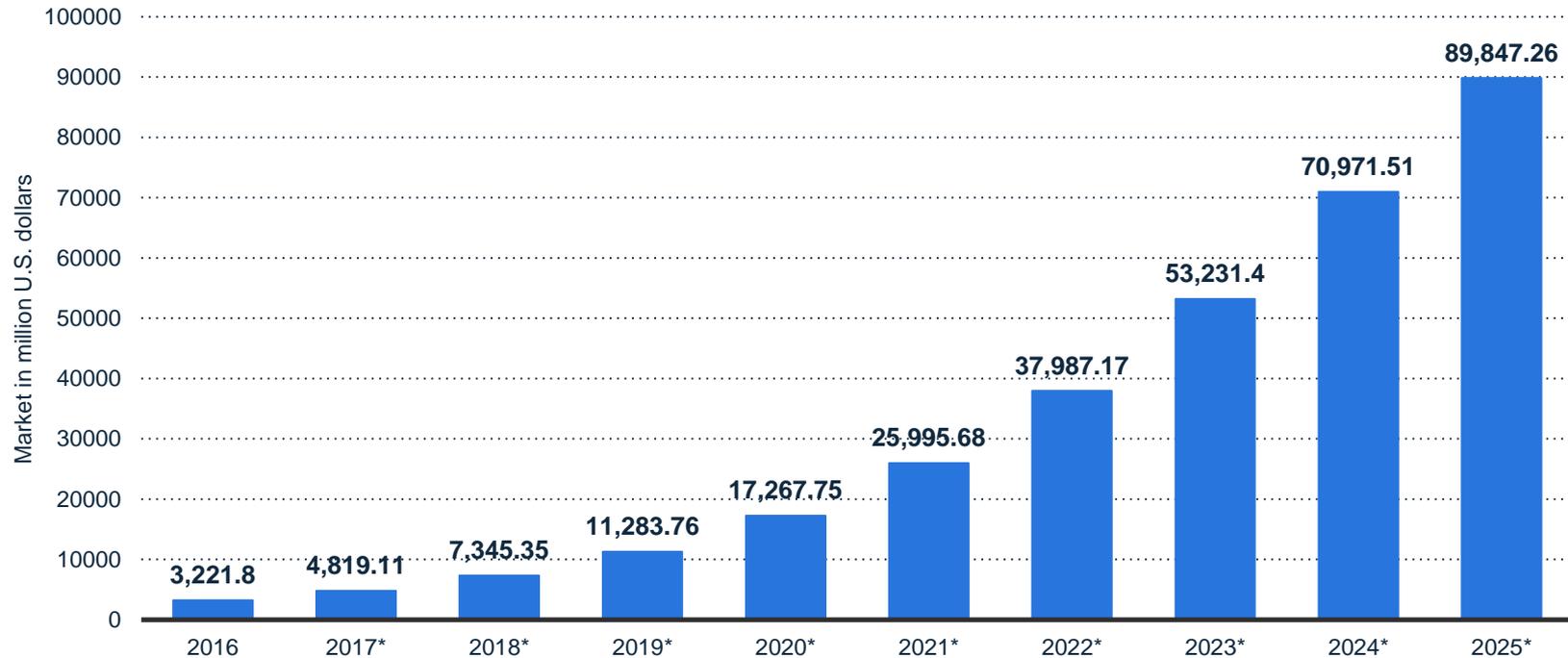
The Nikkel & Elsevier most cited AI research institutes

of AI research institutions in the global top 100 for AI-related research paper citations



Revenues from the artificial intelligence (AI) market worldwide from 2016 to 2025 (in million U.S. dollars)

Artificial intelligence market revenue worldwide 2016-2025



**In a digital economy,
network effects are v strong,
often leading to winner-
takes-all situation.**

[Market overview](#)

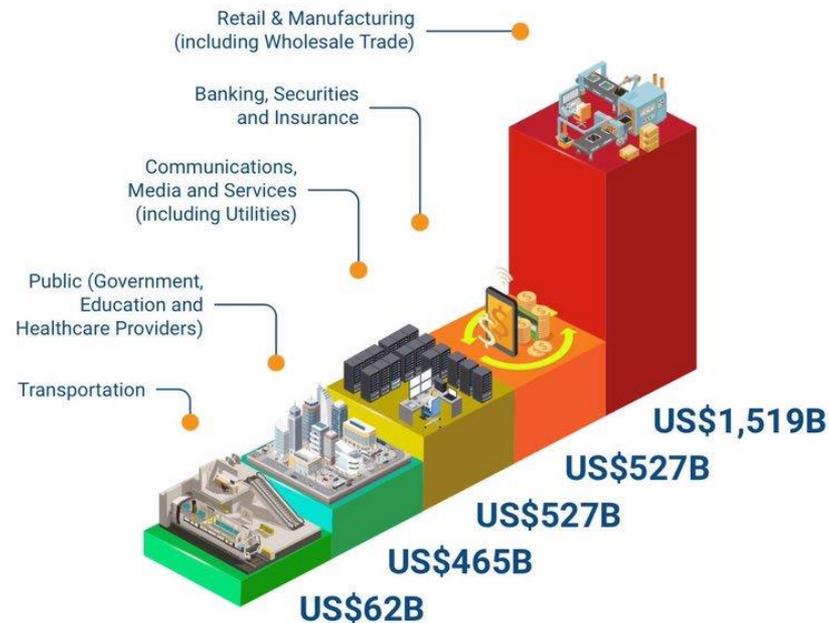
Note: Worldwide; 2016 to 2017
Source(s): Tractica; [ID 607716](#)

It requires being first & fast!

The Blockchain-derived
business value will grow to

US\$3.1 TRILLION

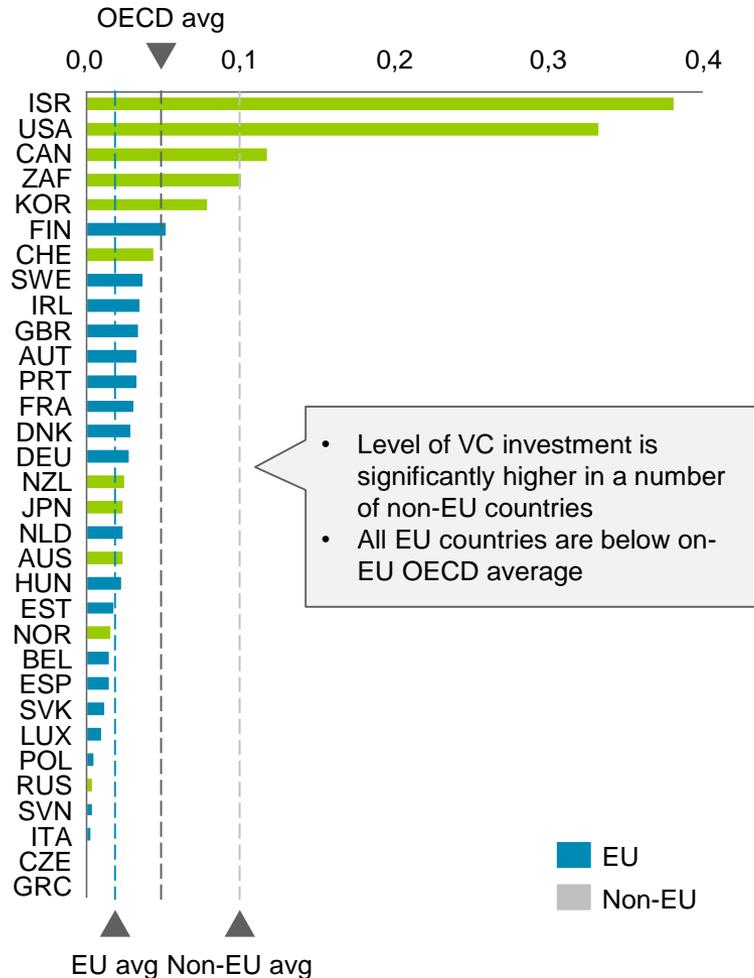
by 2030.²



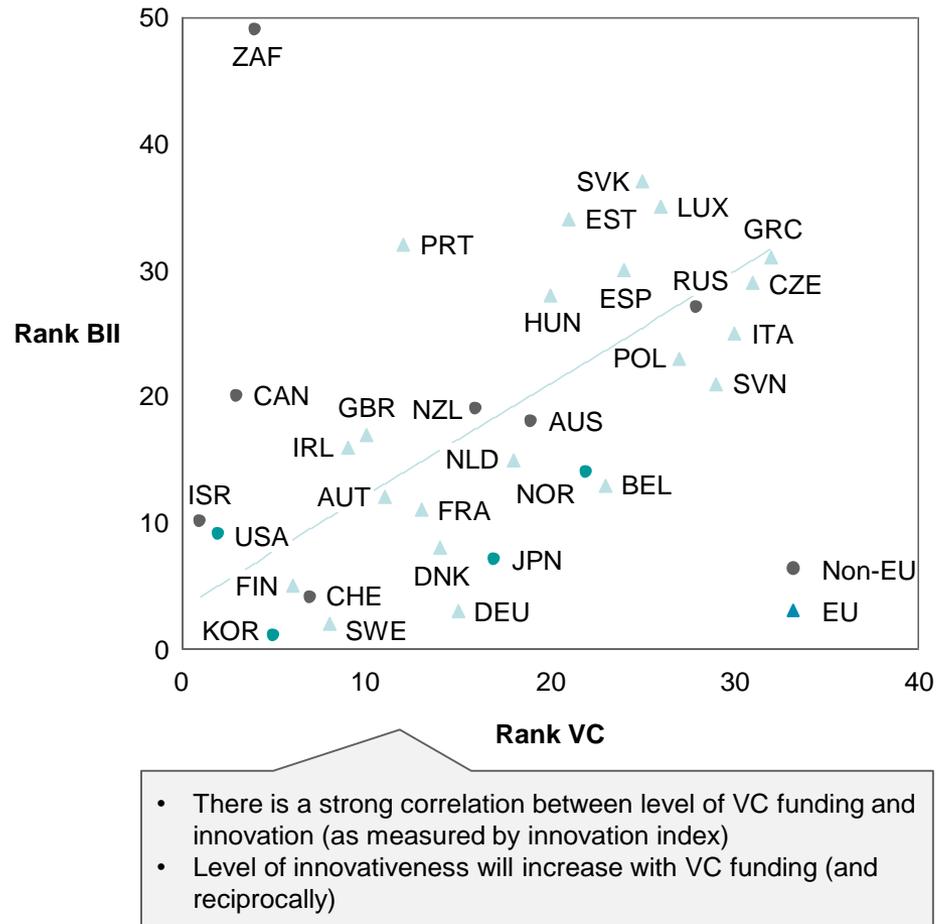
Source: Gartner

Equity financing is limited in Europe

Venture capital investments as % of GDP, 2015



Relationship between venture capital propensity and innovation score, 2015



Investments in AI/Blockchain “made in Europe”

- Investment for start-ups, early and growth stages
- EUR 100 million (EU contribution in 2020)
- With ambitious objectives:
 - **Financing a portfolio** of innovative AI/blockchain companies
 - Developing a **dynamic EU-wide investors community** focusing on AI
 - **Scaling up the volume of investments** at the national level by involving the national promotional banks (NPBs) that are willing to participate
 - **Incentivising further private sector investments**
 - making **Europe become more attractive for start-ups** to stay and grow
- ⇒ Prepare **future support through InvestEU Programme** (starting in 2021)

Why AI & Blockchain?

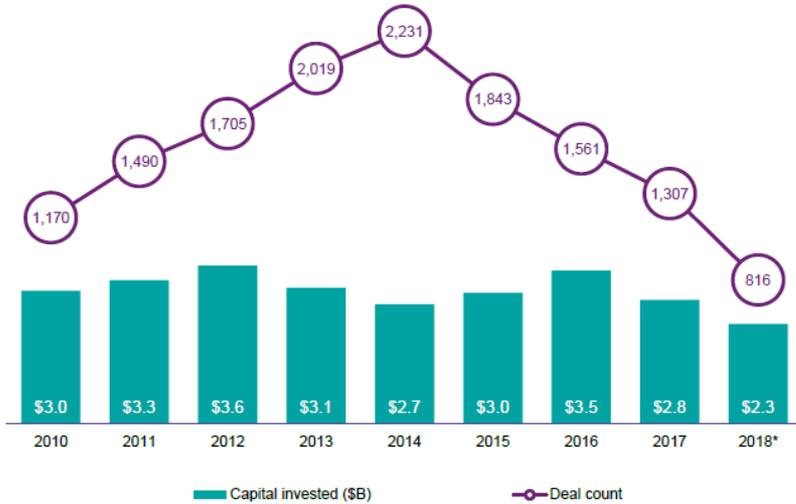


- Foundational technologies ~~that~~ will underpin the future of digital transformation across whole economy
 - deep-tech
 - at a stage of development where volumes of investments make a difference
 - embedding values of society
- Leadership role of Europe
 - The EU has leading research, knowledge and talents
 - High AI and Blockchain standards (data/privacy protection; ethical guidelines and cybersecurity)
 - Engine for innovation-led economic growth
- Role for public bodies and the private sector

AI declaration joined
by **all 28 Member
States and Norway**

Blockchain declaration
with **28 Member
States, Norway and
Lichtenstein**

First-time venture financings of companies in Europe 2010-2018*



Source: Venture Pulse, Q4'18, Global Analysis of Venture Funding, KPMG Enterprise. *As of 12/31/18. Data provided by PitchBook, January 15, 2019.

CryptoFundResearch

Top 50 Blockchain VCs by Location



source: Crypto Fund Research

35 of the 50 leading venture capital firms investing in blockchain and crypto are based in the United States. Eight are based in Hong Kong/China and three in Germany.

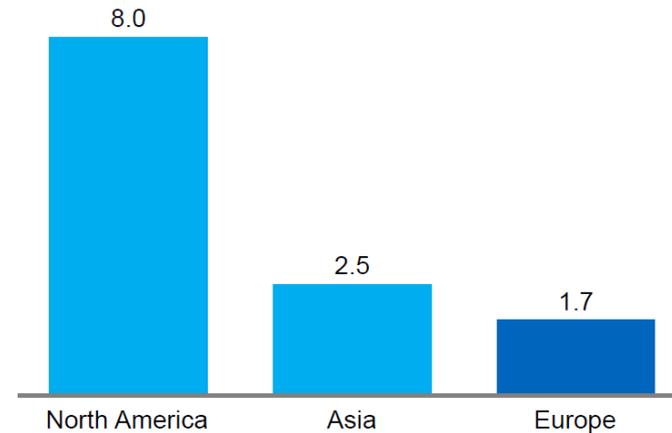
European Commission

"Overall Europe is behind in private investments in Artificial Intelligence"

AI strategy for Europe*
* COM(2018)/237

Europe only attracted ~11% of global VC funding with 50% going to US and the rest mostly to China

AI external investments including VC, PE, and M&A by corporations¹, 2016, USD billion (estimate)



Estimates consist of annual VC investment in AI-focused companies, PE investment in AI-related companies, and M&A done by corporations. Source: Capital IQ; Pitchbook; Dealogic; S&P; McKinsey Global Institute

Investment Gap in AI and blockchain

Market related challenges

- Substantial market failure in financing of digital innovation startups and SMEs in Europe
 - Strong geographic concentration (innovation hubs in Europe)
 - Highly risky investments (IP intensive, lack of collateral)
 - Large investments and long-term financing needed
- Critical challenge to enhance access-to-finance for the scale-up of innovative companies
 - *Despite current level of investments, it is not enough to enable a broad adoption by EU businesses*
- Many European companies obtain funding from non-EU VC investors and start their businesses outside EU

Highly innovative digital SMEs and startups face difficulties to raise financing:

- (i) Information asymmetry between innovators and investors (Technology readiness assessments)
- (ii) High complexity of digital innovations (i.e. AI and blockchain technologies)
- (iii) require large amounts of capital
- (iv) IP-intensive and lack of collateral
- (v) Lack of track record
- (vi) require long-term financing (patient capital)

Deep-Tech related challenges

Where to focus public intervention?

Development: Companies that develop generic AI/BT infrastructures platforms and technology solutions that enable the use of AI/Blockchain solutions across multiple sectors

AI/BT Applications: Companies that develop specific AI/BT applications across a wide number of sectors, inter alia mobility, energy, supply chain, certification and traceability, health, regulatory reporting and government services

Convergence of AI and BT: Companies that develop AI/BT solutions that are based on the convergence of these technologies

Target: 1) SME & startups, for latest technology **development** as well as **applications adopting and scaling up** AI/BT
2) AI and/or BT element is **core** for offering solutions
3) strong EU technology **investor community** (advice, networking, management support, ...)

Stage: early stage and growth stage

Instrument: existing instrument program managed by EIF
(InnovFin Equity Facility – EFSI SME Window)

Total Volume: EUR 300m- leverage EU investments through financial intermediaries (funds investing in AI & blockchain)

Possible co-investments by Member States (MS)

A priority action for MS under the Coordinated Plan on AI

Enabling AI/Blockchain Ecosystems

- **Rapid Market Assessment/ Market Consultations :** identify key investment gaps and geographic priorities
- **Awareness Raising and Community-Building** by connecting innovators with investors
- **Knowledge Sharing** through a *Massive Open Online Course* (MOOC) on digital innovations
- **Matchmaking** between AI/blockchain startups and finance community
- **Portfolio development** of investment ready projects
- **Investment Portal** virtual marketplace for AI/blockchain innovators, researchers, the VC community and investors



Market related challenges

- Substantial market failure in financing of digital innovation startups and SMEs in Europe
 - Race for investment volumes with other regions of the world
 - Strong geographic concentration
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Teaming up for investment in AI “made in Europe”

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 - making **Europe become more attractive for start-ups** to stay and grow
- ⇒ Prepare **future support in the InvestEU Programme**

Innovation Radar:

- *A data-driven methodology to deliver intelligence about public-funded innovations and innovators, and their market readiness.*
- automatically categorises innovations in terms of market maturity
- www.innoradar.eu

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How to bridge the emerging gap between high-tech clusters and traditional sectors?

What financial innovations are needed to enable digital innovations?

How can we remain competitive in a globalized world? (US, Asia)

What are key challenges for fostering local and regional innovation ecosystems?