

PwC Nigeria Alumni Breakfast Meeting

*A Perspective on FinTech's growing influence on
Financial Services*

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Confidential property

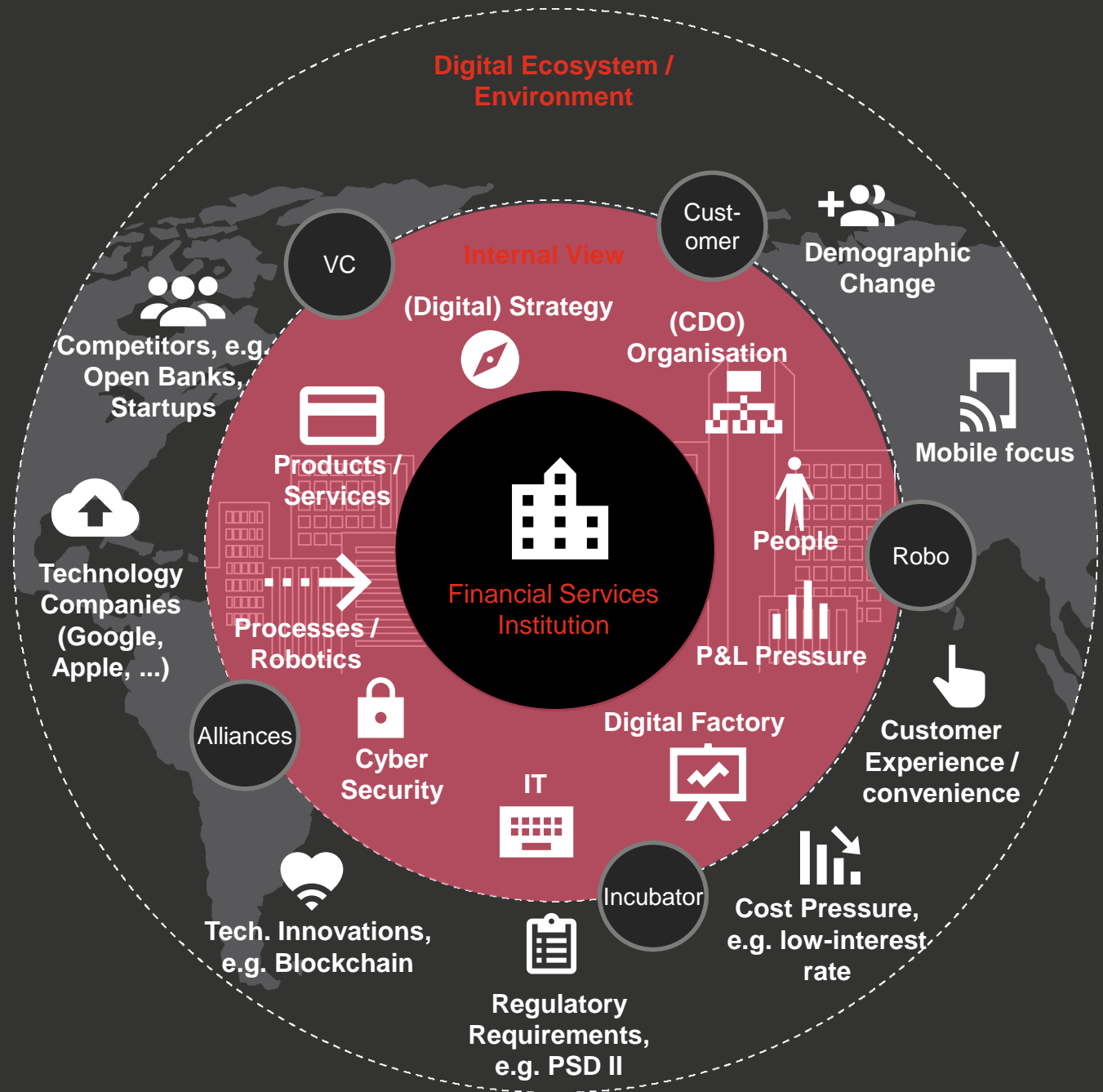


We believe that “Digital” is not just about the technologies. *It’s about finding new ways of* solving problems, creating unique experiences and accelerating business performance.

Reimagine Business in the Digital Age.

Digital disruption financial services

The changing external environment has a tremendous impact on banking business



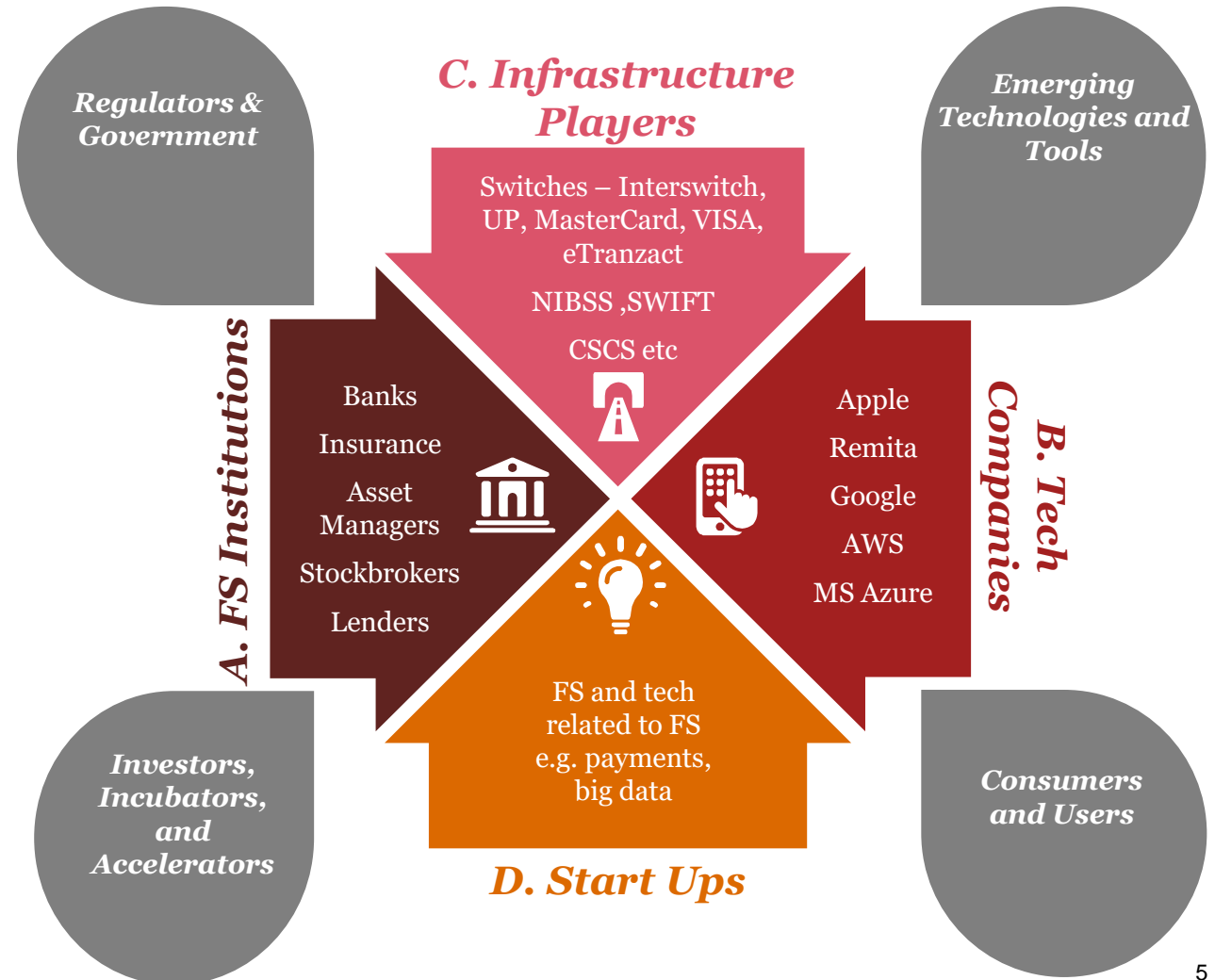
1. Key Trends in the FinTech space



FinTech: the intersection of financial services and technology

The emergence of FinTech has been due to the coinciding impact of:

- Technological innovation
- New distribution channels
- Demographic shift
- Non-traditional competitors
- Policy change



FinTechs are more than just Startups - 6 Strengths of FinTechs



Financing

High investment by VCs and PE companies



Innovation

New technology-based disruptive and innovative business models



Impact on Customers

Changing customer behavior to a focus on user experience



Market Penetration

Penetration of the entire value chain of established FS players



Product Life-Cycle

Extremely short development times from concept to MVP



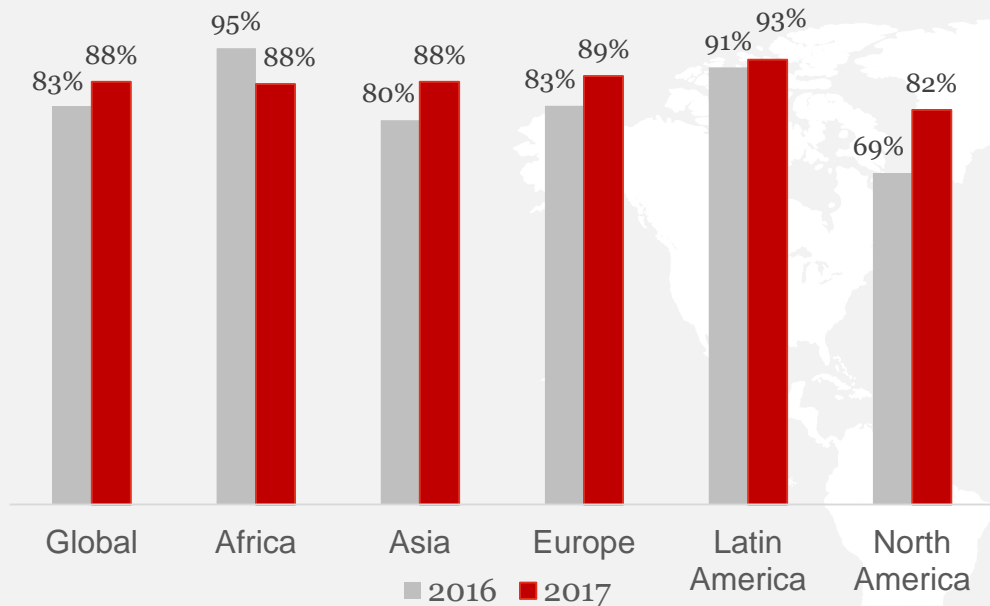
Regulatory Influence

No clear allocation in the regulatory environment

FinTech and Financial Services are coming together (1/2)

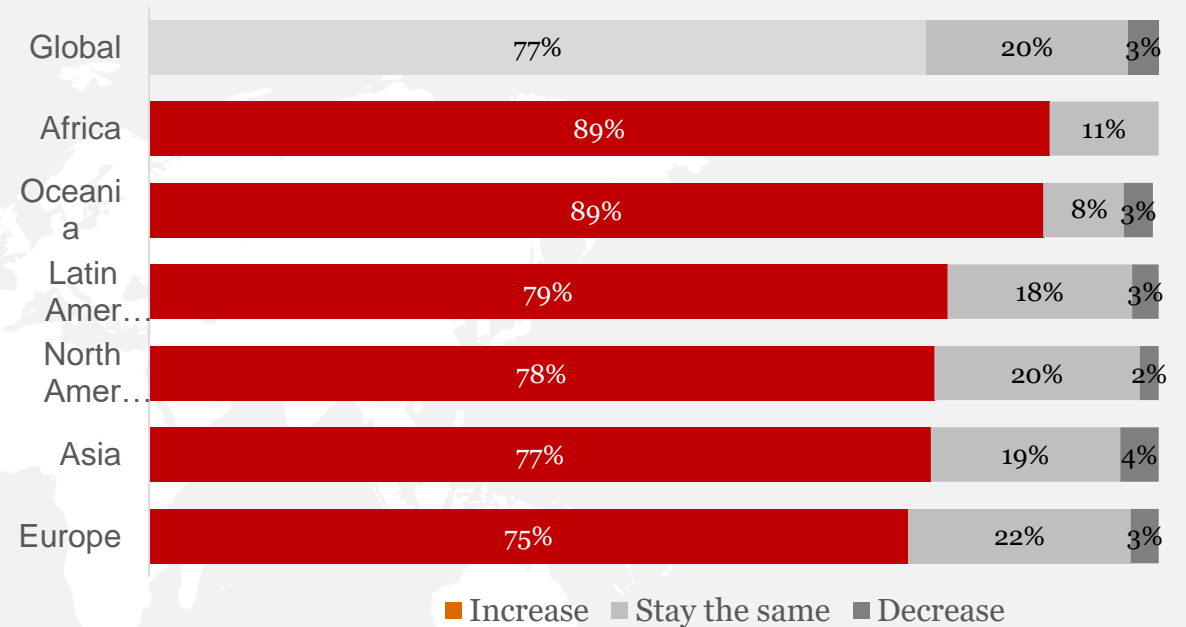
More than 80% believe business is at risk

Do you believe that part of your business is at risk of being lost to standalone FinTech companies within the next 5 years?
 (percentages shown correspond to "Yes")



Financial Institutions are embracing the disruptive nature of FinTech

What changes do you expect to see in your internal efforts to innovate over the next 3-5 years?

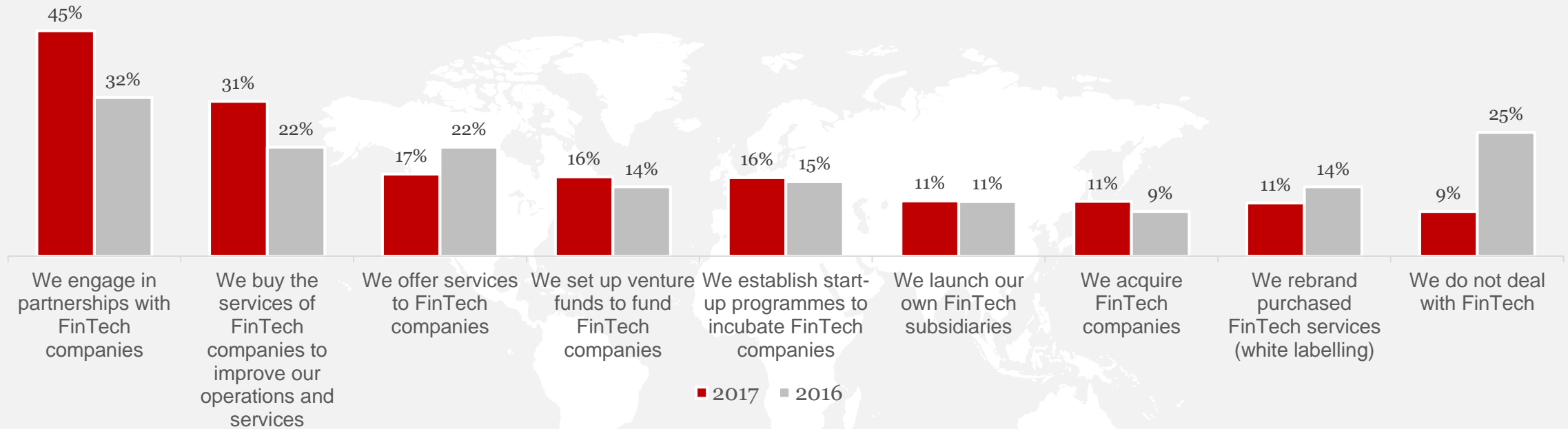


FinTech and Financial Services are coming together (2/2)

Financial Institutions are learning to partner and integrate

82% expect to increase FinTech partnerships in the next 3 to 5 years

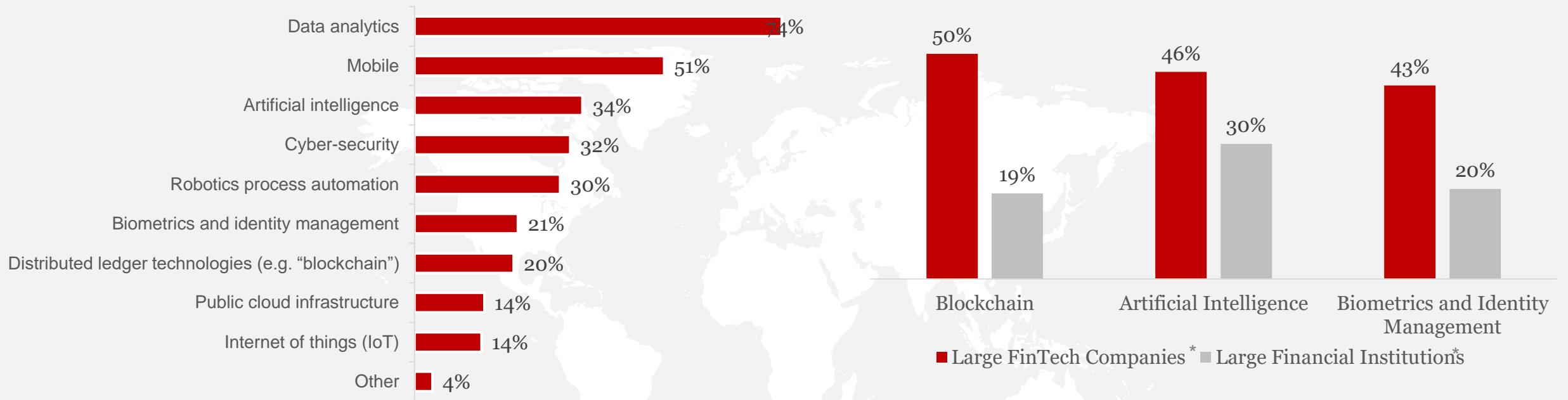
How are you currently dealing with FinTech companies?



Key emerging technologies are enabling convergence (1/2)

Investment in enabling technologies will help narrow the gap

What are the most relevant technologies for your business that you plan to invest in within the next 12 months?

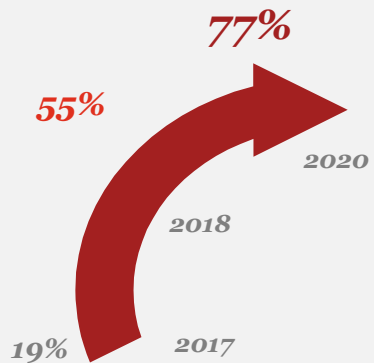


* Large companies include those with over 500 employees

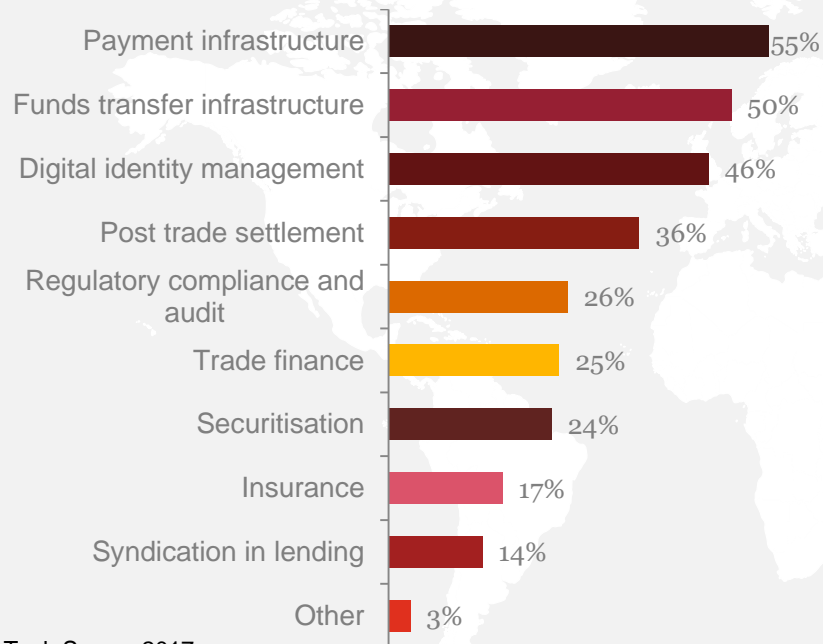
Key emerging technologies are enabling convergence (2/2)

Blockchain is moving out of the lab

What timeframe do you most likely expect your organisation adopt blockchain as part of an in production system / process?

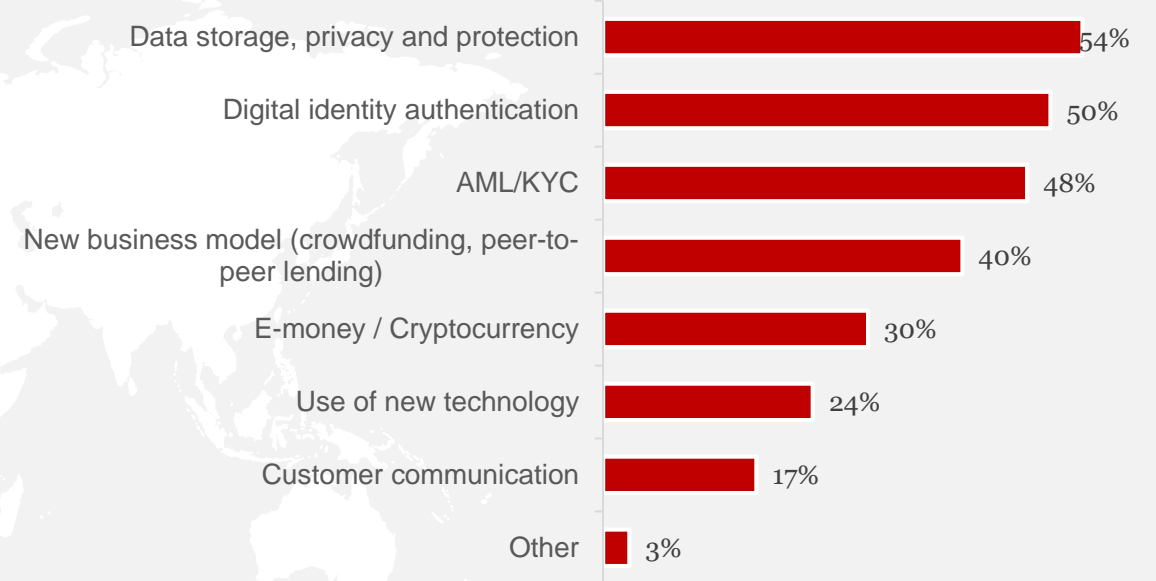


What business use cases do you most likely see blockchain technology useful for?



Regulations trigger disruption and innovation

In which areas do you see regulatory barriers to innovation in FinTech?



RegTech is defined as the solutions which leverage emerging technologies to address risk and regulatory challenges



RegTech

RegTech is defined as the emerging technology solutions focused on addressing risk and regulatory challenges

- All leverage emerging technologies to some degree but there is a data and talent issue to fully harness
- Some are solutions looking for a problem versus others are packaged solutions for use case workflow

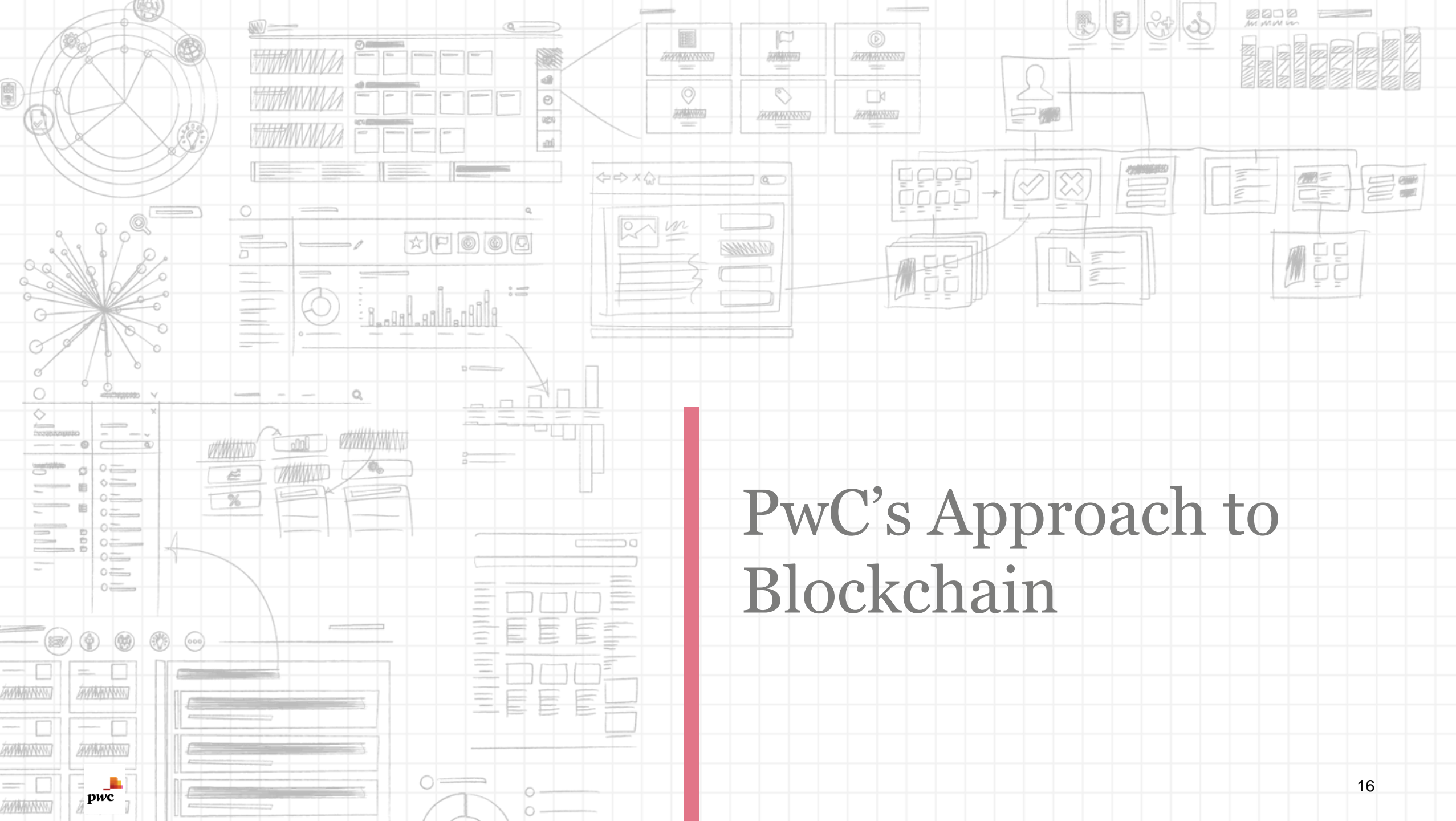
Tactical tools that automate individual processes

Nascent technologies that have the ability to transform the industry

Industry Adoption in process:
100+ bots in production – scaling to 10,000s

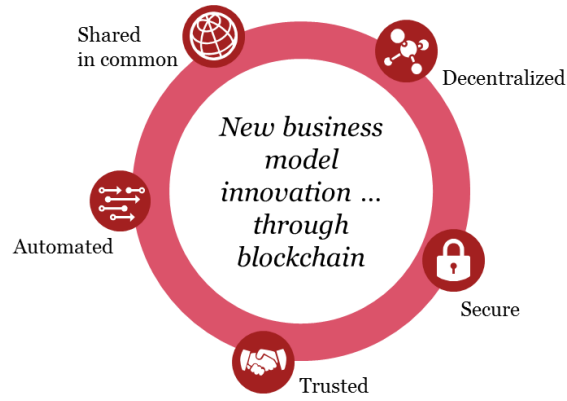
250+ Vendors and growing;
50+ live POCs

400+ vendors with Blockchain capabilities



PwC's Approach to Blockchain

The Blockchain Journey...



Identify opportunity areas

- Define goals and success factors
- Confirm use case(s) for proof of concept (POC)
- Determine which product/customer segment offers the highest value to support POC validation



Identify potential channel partners

- Engage selected channel partners for partnership and innovation piloting
- Evaluate platforms / blockchain technology vendors to the vision, capabilities and requirements
- Confirm blockchain vendor partnership arrangements



Execute proof of concept

- Conduct technology experimentation in sandbox environment (iterative)
- Coordinate with selected channel partners on specific data sets required for simulation
- Confirm channel partner arrangements



Conduct pilot

- Configure/build logic and rules based on use case(s)
- Initiate mock-simulations
- Make adjustments to configuration and logic and refine data sets as necessary (iterative)



Gather pilot metrics

- Gather transaction metrics
- Assess key learnings
- Confirm business case for expansion

Production launch

Implement plan and track performance



Plan

Establish action plan and finalise business case for moving forward on blockchain expansion, adoption, and implementation

Where is your organisation on this journey?

Sceptic

Characteristics:

- ❖ Uncertain if BC will go anywhere
- ❖ Concerned about bitcoin, ICOs, etc.
- ❖ Unsupported “dabblers’ inside the organisation.

Considerations:

- ✓ Immersion Experience
- ✓ Strategic Response & Roadmap
- ✓ Training and knowledge sharing
- ✓ R & D

Explorer

Characteristics:

- ❖ Have a BC Lab or work with partners
- ❖ Built some POCs and examined use cases
- ❖ Perhaps waiting to see where BC goes before taking anything out of lab

Considerations:

- ✓ POC assessment & support (design and build)
- ✓ Prototype Dev. & Pilot Execution
- ✓ Product Strategy & Planning

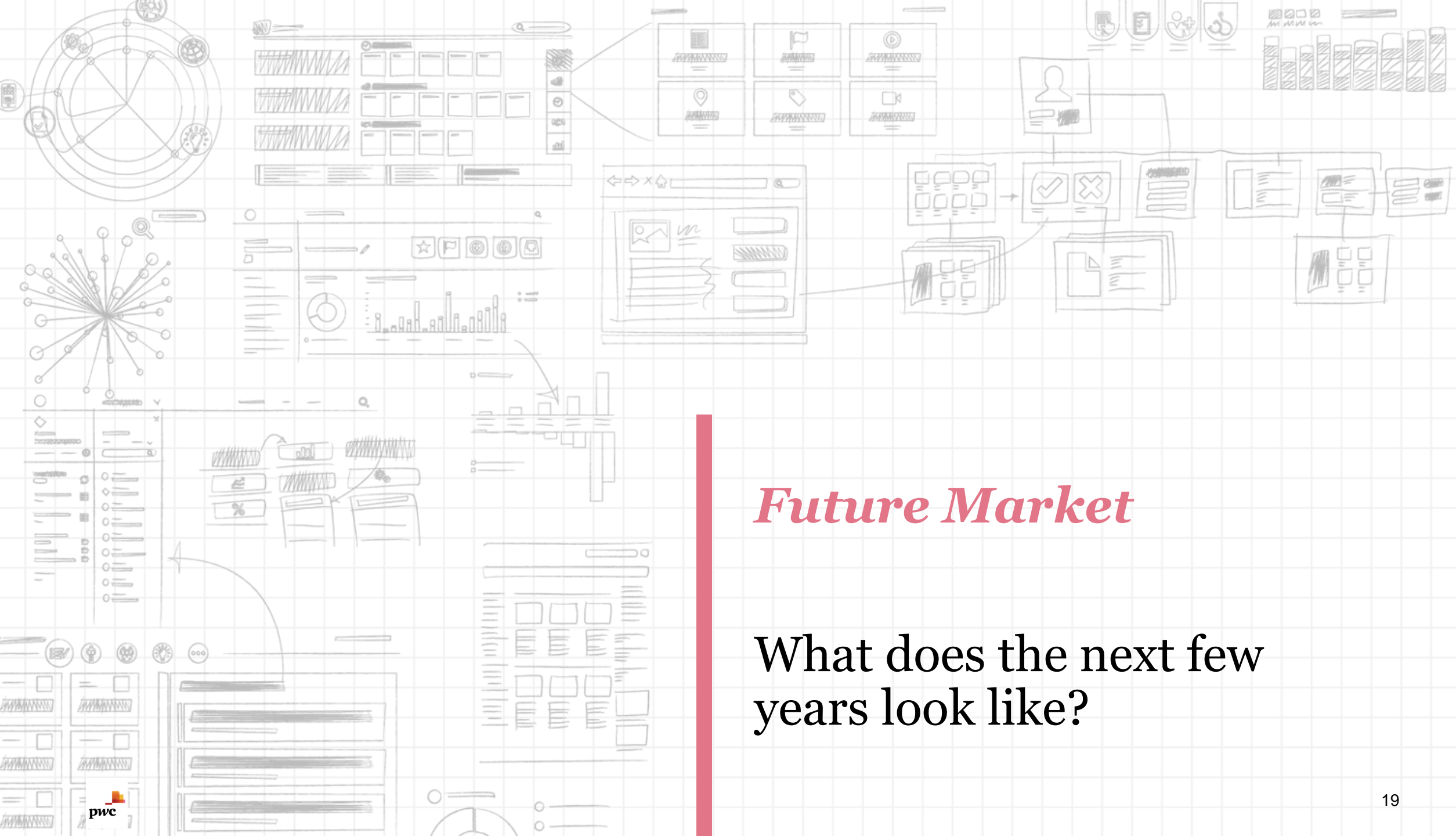
Advocate

Characteristics:

- ❖ Built POCs, running pilots, have team of experts
- ❖ Active participation in consortia, x-industry use case sponsorship
- ❖ Partnering with big tech.

Considerations:

- ✓ Assurance & risk management
- ✓ Showcase PwC BC solutions
- ✓ Product execution (including in a consortium)
- ✓ E2E Operating Model Dev.



Future Market

What does the next few years look like?

Blockchain is emerging everywhere and we cannot ignore it

- 2022 market for Blockchain services estimated to be between \$2bn (Gartner) and \$9bn (IDC) by 2022
- *“By 2022, at least five countries (including at least one G7) will have issued fiat-backed Cryptocurrency”* (Gartner)
- Blockchain fabrics (e.g. Ethereum) will be faster and more secure supporting move to run critical infrastructure on blockchains
- Capital markets stakeholders increasingly relying on blockchain technology to directly monitor market/corporate activity and performance

Why is it important for our clients?

“Blockchain and related technologies provide the potential basis to drive transformation across numerous business processes in multiple industries, to generate process cost savings worth billions of dollars and to create trust for complex ecosystems.

For this reason, Gartner now forecasts that, by 2025, blockchain will generate an annual business value of over \$175 billion, rising to over \$3 trillion by 2030”

Payments Systems	Digital Tokens & Cryptocurrencies	Identity Management	Insurance Claims Management
Recording Rights Management	Healthcare Records	Supply Chain Traceability	Internal Audit
Emissions Trading	Letters of Credit	Sports Collectibles	Energy Capacity Management
Meat Product Provenance	Land and Title Registry	Regulatory Monitoring & Reporting	Supplier Management
Smart Cities	Insurance Product Placement	Birth Registry	KYC/AML
Central Bank Managed Digital Currency	Aid & Benefits Disbursement	Digital Wallets	Aircraft Parts Traceability

Rapidly changing technology, blockchain infrastructure, and new business models are driving rapid growth in ICOs...

Definition & characteristics

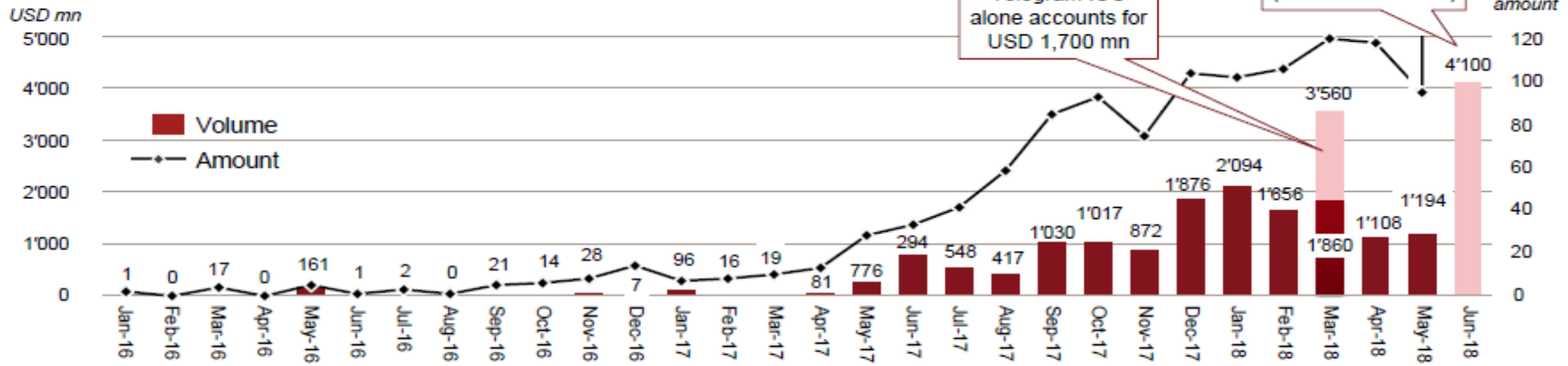
Initial coin offering ('ICO', also token launch or token generation) is a term describing a **limited period** in which a **company** sells a predefined number of **digital tokens** (crypto coins) to the **public**, typically in exchange for major cryptocurrencies or increasingly against FIAT currencies.

ICOs are inconsistently regulated across the world, and, depending on the jurisdiction, they can take different forms including a **security, utility token or digital currency**. Prospectively, ICOs are increasingly an **alternative** to classic debt/ capital-funding as performed today by Venture Capital/ Private Equity firms and banks.

ICO development

Year	Ø duration/ ICO (d)	Ø USD mn/ ICO	Total # ICOs	Total volume (USD mn)
2013	41	0.4	2	0.8
2014	68	3.8	8	30.5
2015	32	1.0	10	9.9
2016	39	5.1	49	252.0
2017	29	12.8	552	7,043.3
YTD 2018	48	25.5	537	13,712.8
All	38	18.2	1,158	21,049.4

Monthly ICO number and volume



1) Calculations based on currency exchange rates on end date of ICO. As Ether and Bitcoin exchange rates are highly volatile, actual and current market capitalization of the companies today may differ significantly from figures shown in the table. ICO funding amount until 29.05.2018 considered.
Source: PwC Strategy & analysis

Telegram and EOS have introduced the era of 'ICO Unicorns' with a record breaking USD 1.7bn and USD 4.1bn (estd.)

Overview: 15 biggest ICOs overall since 2016

			Total raised amount (USD mn) ¹	End of ICO (month)	Focus	Industry	Country
1	EOS²⁾	1 Year ICO	4100.0	06.2018	Infrastructure for decentralized apps	BC infrastructure	Cayman Islands
2	Telegram	NEW	1700.0	03.2018	Tokens for messenger	Social Media	British Virgin Islands
3	Dragon	NEW	320.0	03.2018	Decentralized Currency for Casinos	Gambling	British Virgin Islands
4	Huobi Token	NEW	300.0	02.2018	Coin for South Korean crypto exchange	FinTech	Singapore
5	HDAC	NEW	258.0	12.2017	IOT platform backed by Hyundai BS&C	Internet of Things	Switzerland
6	Filecoin		257.0	09.2017	Decentralized Market for Data Storage	Data storage	USA
7	Tezos		232.0	07.2017	Platform for decentralized apps	BC infrastructure	Switzerland
8	Sirin Labs	NEW	157.9	12.2017	Secure open source consumer electronics	Consumer electronics	Switzerland
9	Bancor		153.0	06.2017	Enabling direct conversion between tokens	FinTech	Switzerland
10	Bankera	NEW	150.9	03.2018	Banking for the Blockchain era	FinTech	Lithuania
11	Polkadot		145.2	10.2017	Simultaneous use of multiple Blockchain	BC infrastructure	Switzerland
12	The DAO		142.5	05.2016	Decentralized autonomous organization	Venture capital	Switzerland
13	Polymath	NEW	139.4	01.2018	Security token platform	FinTech	Barbados
14	Basis	NEW	133.0	04.2018	Stablecoin without price volatility	FinTech	USA
15	Orbs	NEW	118.0	05.2018	Public Blockchain for decentralized apps	BC infrastructure	Israel

1) Calculations based on currency exchange rates on end date of ICO. As Ether and Bitcoin exchange rates are highly volatile, actual and current market capitalization of the companies today may differ significantly from figures shown in the table. ICO funding amount until 29.05.2018 considered.

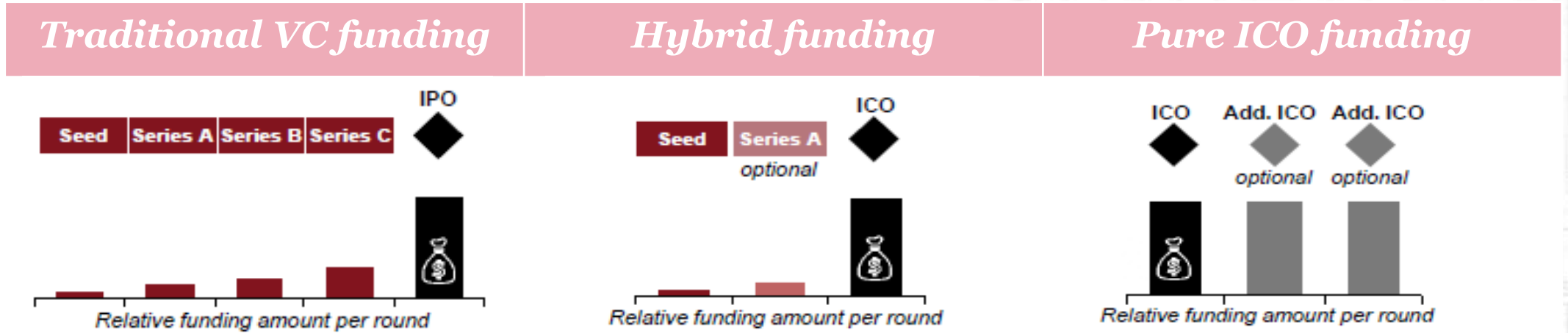
Petro, the acclaimed USD 5bn ICO by the Maduro government of Venezuela was not considered, as the political opposition claims that the funds did not reach Venezuela




2) EOS conducted a two-phased ICO. In the 1st phase (5 days in June 2017), USD 185 mn were raised. The second phase lasted 350 days, ending in June 2018.

Source: PwC Strategy& analysis

ICOs disrupt traditional VC funding – and hybrid models are ‘en vogue’ as they combine smart money and community support...

Funding rounds



Funding Rationale	Receive initial funding after business plan, prototype and team validation	Receive initial funding after business plan, prototype and team validation – ICO funding to grow business further & raise more funds	Receive funding based on whitepaper, founder team and idea – additional ‘ICO’ only if necessary (rare)
Pros & Cons	<ul style="list-style-type: none"> Investors cautiously validate ideas before committing funds Founders cautious with spending money Founders often focused on next funding round (hinders innovation) 	<ul style="list-style-type: none"> Founders get “smart money” as well as crowd support (first customer) VCs validate seriousness of business, crowd validates idea & market potential Founders are free to innovate Potential conflicts between shareholders and token holders 	<ul style="list-style-type: none"> Founders great crowd support Founders are free to innovate Governance risks if no framework Transparency risks on use of proceeds and product development
Initial investors	 Business Angels Venture Capitalists	 Business Angels Venture Capitalists Tech Savvy BC/ Crypto community Anonymous Investors	 Tech Savvy BC/ Crypto community Anonymous Investors

Sample use cases in Nigeria...

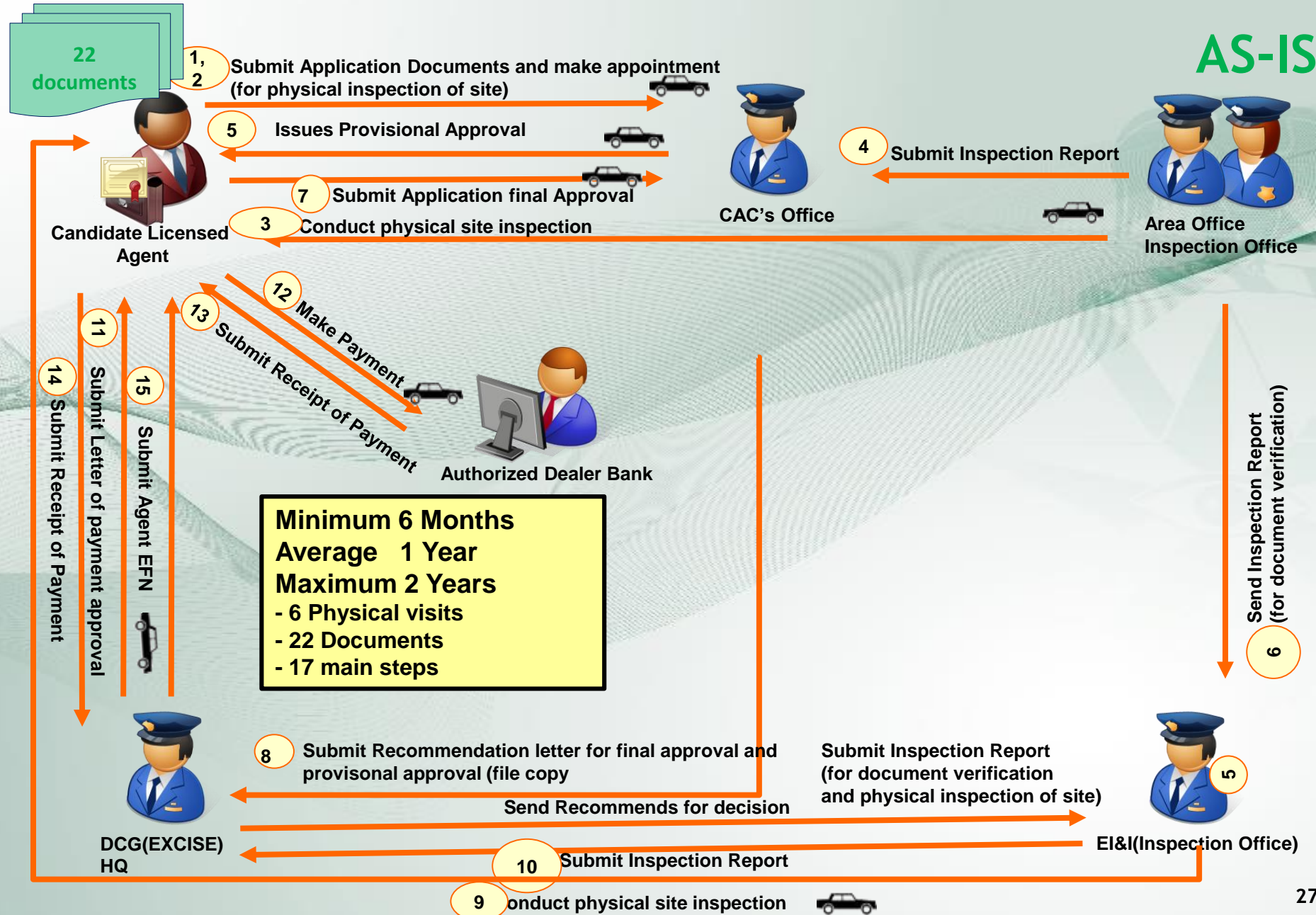
- ❑ Creating an Irrefutable Data Repository of all Excise Traders in Nigeria
 - ❑ (The Blockchain Ledger)
- ❑ Issuing Permits and Licenses on Blockchain
 - ❑ Verification, Authentication, Digital Signatures
- ❑ Tracking the life cycle of all products on the Blockchain
 - ❑ Blockchain Ledger
- ❑ Computation of Excise Duties based on production information
 - ❑ Blockchain Ledger – (Revenue assurance)
- ❑ Monthly duty payments backed by BG's & Bond called automatically on default
 - ❑ Smart Contracts

Sample use cases in Nigeria...

Key Stakeholders

NCS	Nigerian Customs Service. Responsible for executing the excise trade process.
Excise Trader	Requires an excise license with which to conduct business in Nigeria. Registers materials, operations and finished products
State Building Authority	Approve building plans
SON	SON (Standards Organization of Nigeria) – Viewing specification of various products
NAFDAC	NAFDAC (National Agency for Food and Drug Administration and Control): View materials and contents of various products
Banks	Commercial Banks: Verification of transactions and helping with assessing Credit Worthiness

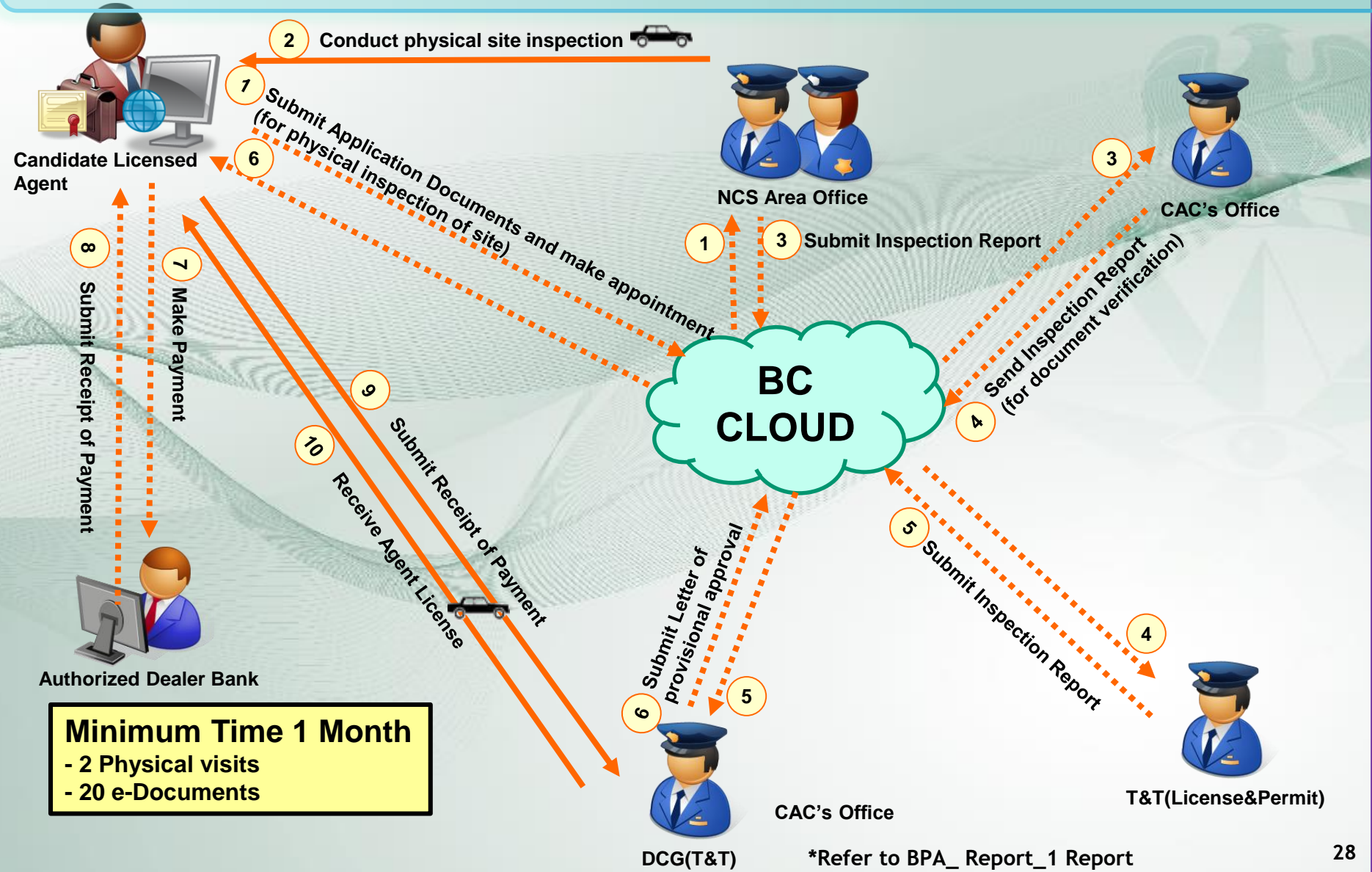
License Registration for Excise (AS-IS: Entry of premises Process NCS)



1. EXCISE License Registration (TO-BE)



Building Synergy and Collaboration with stakeholder and other OGAs



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