



Smart Contracts on Distributed Ledger – Life in the Smart Lane

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IT Services Thematic Report – September 2016 – Preview Deck

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Corporate Headquarters

Office: +1-214-451-3000

info@everestgrp.com



European Headquarters

Office: +44-207-129-1318

unitedkingdom@everestgrp.com

¹ Banking, financial services, and insurance

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Background and scope of the research

Background of the research

In our previous research report, “Blockchain in BFSI: Looking beyond the Hype”, we presented a fact-based assessment of the state of the market, detailing investments made by participants such as financial services companies, technology companies, and FinTech startups. This was done with the aim to identify the opportunities, challenges, and key success factors for BFSI enterprises looking to leverage blockchain technology. In this report, we do a deep dive into smart contracts. We believe that smart contracts on blockchain will bring many of the benefits of blockchain technology to fore by reducing costs of transactions and infrastructure while driving efficiencies, financial inclusion, reducing risks, automating processes, and creating new business models.

Financial enterprises and FinTech are exploring the use of smart contracts for various use cases across the BFSI value chain. Currently, the prototypes developed by financial services enterprises and consortiums have primarily been a simplified version of a smart contract, which is still in its early stage of maturity, however, we expect to see enterprise-grade smart contracts being developed in the next 12 to 18 months (by early 2018). Few of the key areas where there is a lot of work to be done is in terms of legal and regulatory compliance, ensuring scalability & security, and the ability to code complex contracts that dominate the financial services landscape into smart contracts.

In this report, we attempt to define smart contracts, explore use cases, and understand some of the benefits of this technology. The contents of this report are the result of a comprehensive study featuring online sources and literary works, as well as our interactions with service providers and enterprises. The aim is to identify the opportunities, challenges, and key success factors for BFSI enterprises looking to leverage the smart contracts technology. This report also explores use cases for smart contracts beyond the BFSI sector in areas such as smart power grids, rewards & loyalty, voting & identity management, and digital rights management among others. The research also captures evolving trends, market dynamics, and emerging priorities of enterprises.

In this research, we analyse current trends and future outlook of smart contracts technology on the global BFSI sector

Scope of this report

- **Industry:** Banking, Financial Services, and Insurance
- **Geography:** Global

Note: In this report we use “blockchain” to refer to any form of distributed ledger technology that can store encrypted transactions and maintain trust through any form of consensus mechanisms. Whenever we need to refer to the blockchain platform for the Bitcoin currency, we refer to it as the “Bitcoin blockchain”

Our research methodology is based on four pillars of strength to produce actionable and insightful research for the industry

- Market thought leadership
- Actionable and insightful research
- Syndicated and custom research deliverables

1 Robust definitions and framework
(PEAK Matrix, market maturity, and technology adoption/investment)

The service providers were mapped on Everest Group's Performance | Experience | Ability | Knowledge (PEAK) Matrix

2 Primary sources of information
(Annual, contractual and operational RFIs, service provider briefings and buyer interviews, and web-based surveys)

Appendix: respondent profile

3 Diverse set of market touchpoints
(Ongoing interactions across key stakeholders, input from a mix of perspectives and interests, supports both data analysis and thought leadership)

4 Fact-based research
(Data-driven analysis with expert perspectives, trend-analysis across market adoption, contracting, and service providers)

The best practice FAD processes from an outsourcing perspective often get implemented by contract extension as the client realizes more cost and confidence in the supplier's ability to deliver value.

- Proprietary contractual database of 600+ large active BFSI AO contracts (updated annually)
- Year-round tracking of 25+ BFSI AO service providers
- Dedicated team for BFSI IT outsourcing research, spread over two continents
- Over 20 years of advising BFSI clients on ITO and BPO decisions
- Executive-level relationships with buyers, service providers, technology providers, and industry associations

How to read this document

Sections of the report	Details of the information covered in each section
Summary of key messages	<ul style="list-style-type: none">This section summarizes key messages from this report in addition to providing a recap of the previous research on blockchain in BFSI
Definition of smart contracts	<ul style="list-style-type: none">This section provides definition of smart contractsA detailed illustration is provided to explain the workings of smart contracts
Components of smart contracts	<ul style="list-style-type: none">This section explains the components of a smart contracts that covers the execution and settlement of smart contracts
Use cases	<ul style="list-style-type: none">This section deep dives into use cases of smart contracts on distributed ledgers across different sectors with a focus on the BFSI vertical
Trends and implications	<ul style="list-style-type: none">This section covers the key trends for smart contracts and its implications on enterprises and service providers
Definitions of unfamiliar terms and related research	<ul style="list-style-type: none">Acronyms or technical outsourcing terms are defined in the glossary of terms (Appendix)Refer to the related Everest Group BFSI IT Outsourcing research publications listed in references (Appendix)

Overview and abbreviated summary of key messages

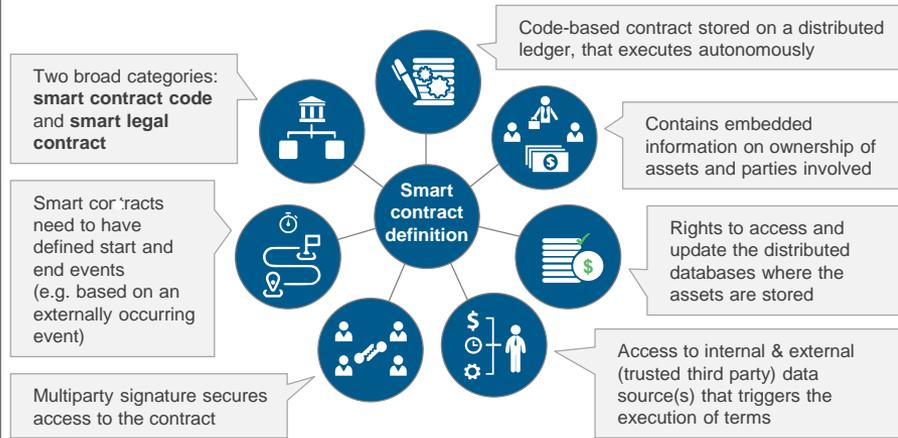
This report provides an overview of the smart contracts technology in the BFSI industry, through an in-depth analysis and comprehensive study featuring online sources and literary works, as well as our interactions with service providers and enterprises. The report analyzes key trends in the smart contracts and distributed ledger market, demand drivers, adoption trends, emerging themes, key areas of investment, and implications for enterprises and service providers.

Some of the findings in this report, among others, are:

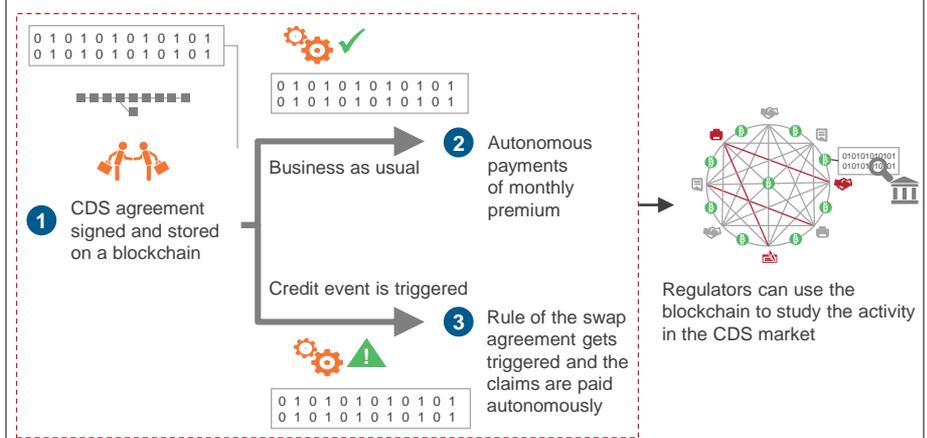
- Blockchain is the database and smart contracts is the application layer that makes much of the benefits of blockchain technology a reality
- Smart contracts are a complex set of software codes with components designed to automate execution and settlement
- Smart contracts use autonomously executed software programs running on a distributed ledger to automate business processes
- To accelerate the adoption of smart contracts and realize higher benefits, enterprises need to develop a smart contracts talent pool that can connect legal text to business logic and eventually convert to smart contracts on a distributed ledger
- Industry standards need to emerge for enterprise adoption. Security of smart contracts is an area of concern
- As smart contracts technology and use cases mature, the industry will move towards mutualizing development costs
- Smart contracts cause a convergence of smart devices, analytics, artificial intelligence, cloud, and blockchain technologies
- Trade finance, post-trade services, and event-driven insurance are the leading use cases being piloted/experimented by financial services institutions
- Loyalty and rewards, smart power grids, and digital rights management are the top use cases being piloted in other sectors

This study offers a deep dive into key aspects of smart contracts; below are four charts to illustrate the depth of the report

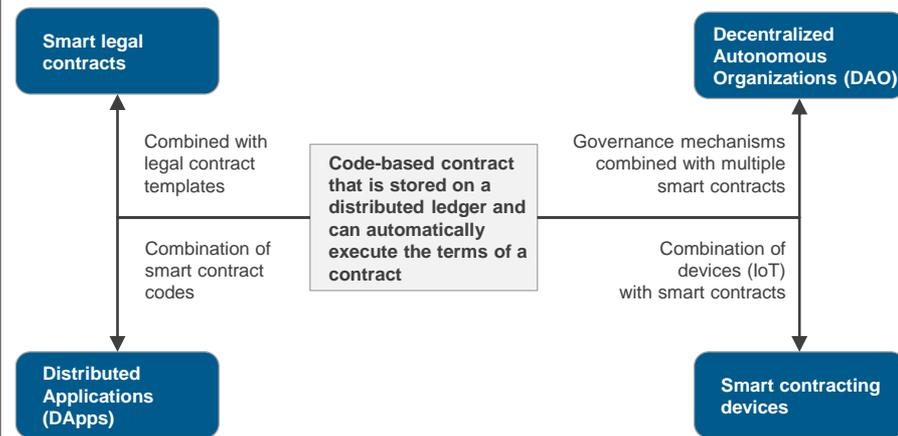
Smart contract definition



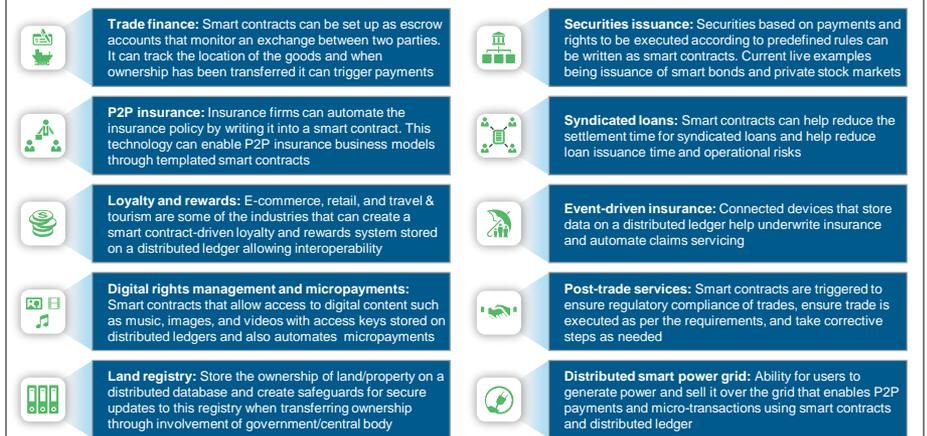
Smart contract on blockchain – illustrated



Classification of smart contracts based on applications



Exploring the smart contracts use cases



Source: Everest Group (2016)

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Glossary of key terms used in this report (page 1 of 2)

Term	Definition
ACV	Annualized Contract Value is calculated by dividing the Total Contract Value (TCV) by the term of the contract
ADM	Application Development and Maintenance is the development and upkeep of the software code for systems, applications, and products
AO	Applications Outsourcing
API	Application Programmable Interface
BFSI	Banking, Financial Services, and Insurance industry
BPO	Business Process Outsourcing refers to the purchase of one or more processes or functions from a company in the business of providing such services at large or as a third-party provider
Buyer	The company/entity that purchases outsourcing services from a provider of such services
CAGR	Compound Annual Growth Rate refers to the year-over-year growth rate over a multiple-year period. CAGR is calculated as: $CAGR = (current\ value / base\ value)^{(1 / number\ of\ years)} - 1$
ERP	Enterprise Resource Planning is a computer-based system to manage internal and external resources of an organization including assets, financial resources, materials, and human resources
FTE	Full-time Employees on the rolls of the company
IoT	Internet of Things

Glossary of key terms used in this report (page 2 of 2)

Term	Definition
ITO	Information Technology Outsourcing is the transfer of ownership of some or all information technology processes or functions to a service provider. This could include administrative, delivery, or management-related processes or functions
KPIs	Key Performance Indicators
KYC	Know Your Customer
LoBs	Lines of Businesses
M&A	Mergers and Acquisitions
Nearshore	Nearshoring is the sourcing of service activities to a foreign, lower-wage country that is close in some dimension of distance
NFC	Near Field Communication
Onshore	Onshore outsourcing is the obtaining of services from outside a company but in the same country
PoC	Proof-of-Concept
P2P	Peer-to-Peer
Service provider	A company/entity that supplies outsourcing services to another company/entity
SI	Systems Integration
TCV	Total Contract Value is the potential revenue associated with the contract and estimated at the commencement of the contract (e.g., sum total of revenue accrued to the service provider from the contract over the entire contract term, usually measured in millions of dollars)

BFSI ITS research calendar

■ Published
 ■ Current

Topic	Release date
Blockchain in BFSI – Looking Beyond the Hype	March 2016
IT Outsourcing in Banking – Annual Report 2016	June 2016
Digital Effectiveness in U.S. Retail Banking – APEX Matrix™ to Identify the Digital Banking Leaders 2016	July 2016
IT Outsourcing in Global Banking – Service Provider Landscape with PEAK Matrix™ Assessment 2016 and Profiles Compendium	August 2016
Digital Effectiveness in Europe Retail Banking – APEX Matrix™ to Identify the Digital Banking Leaders 2016	August 2016
IT Outsourcing in Banking – Annual Report 2016: Simplify the Bank	August 2016
IT Outsourcing in Global Capital markets – Service Provider Landscape with PEAK Matrix™ Assessment 2016	September 2016
IT Outsourcing in Global Capital markets – Annual Report 2016	September 2016
Smart Contracts on Distributed Ledger – Life in the Smart Lane	September 2016
IT Outsourcing in Insurance – Service Provider Landscape with PEAK Matrix™ Assessment 2016	Q3 2016
IT Outsourcing in Insurance – Annual Report 2016	Q3 2016
Analytics in Banking– Service Provider Landscape with PEAK Matrix™ Assessment 2016	Q4 2016
Mobility in Banking– Service Provider Landscape with PEAK Matrix™ Assessment 2016	Q4 2016
Mobility in Insurance – Service Provider Landscape with PEAK Matrix™ Assessment 2016	Q4 2016
Analytics in Insurance – Service Provider Landscape with PEAK Matrix™ Assessment 2016	Q4 2016

Additional research references

The following documents are recommended for additional insight into the topic covered in this report. The recommended documents either provide additional details on the topic or complementary content that may be of interest.

1. **IT Outsourcing in Banking – Annual Report 2016: Simplify the Bank** ([EGR-2016-11-R-1805](#)); 2016. This report provides an overview of the Application Outsourcing (AO) market for the capital markets industry, through an in-depth analysis of large-sized AO contracts (i.e., contracts over US\$25 million in TCV and over three years in duration). The report analyses key trends in market size & growth, demand drivers, adoption & scope trends, emerging priorities of buyers, key investment themes, and future outlook for 2016 with regards to such large capital markets AO deals
2. **Blockchain in BFSI – Looking beyond the hype** ([EGR-2016-11-R-1725](#)); 2016. This report provides an overview of blockchain technology and its impact on global BFSI sector. The report covers the market trends, enterprise priorities and key investment themes related to blockchain. The report helps financial services institution and service provider cut through the hype and understand the current state of adoption and the future promise of blockchain
3. **BFSI Digital Adoption Trends – The Investment Enigma for BFSI Enterprises: Where to Invest?** ([EGR-2016-4-R-1720](#)); 2016. This report assesses the current state of digital adoption in BFSI enterprises. The report establishes a definitional framework for digital adoption, provides insights into the forces driving the adoption, assessing current state of adoption, and identifying implications for enterprises and service providers in their digital investments

For more information on this and other research published by Everest Group, please contact us:

Jimit Arora, Partner:

Ankur Seth, Practice Director:

Aaditya Jain, Senior Analyst:

Archit Mishra, Senior Analyst:

Ronak Doshi, Senior Analyst:

jimit.arora@everestgrp.com

ankur.seth@everestgrp.com

aaditya.jain@everestgrp.com

archit.mishra@everestgrp.com

ronak.doshi@everestgrp.com

Website: www.everestgrp.com | Phone: +1-214-451-3000 | Email: info@everestgrp.com



About Everest Group

Everest Group is a consulting and research firm focused on strategic IT, business services, and sourcing. We are trusted advisors to senior executives of leading enterprises, providers, and investors. Our firm helps clients improve operational and financial performance through a hands-on process that supports them in making well-informed decisions that deliver high-impact results and achieve sustained value. Our insight and guidance empowers clients to improve organizational efficiency, effectiveness, agility, and responsiveness. What sets Everest Group apart is the integration of deep sourcing knowledge, problem-solving skills and original research. Details and in-depth content are available at www.everestgrp.com and research.everestgrp.com.

Dallas (Headquarters)

info@everestgrp.com
+1-214-451-3000

New York

info@everestgrp.com
+1-646-805-4000

Toronto

canada@everestgrp.com
+1-647-557-3475

London

unitedkingdom@everestgrp.com
+44-207-129-1318

Delhi

india@everestgrp.com
+91-124-284-1000

Stay connected

Websites

www.everestgrp.com
research.everestgrp.com



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www.sherpasinblueshirts.com

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