

# emulya



---

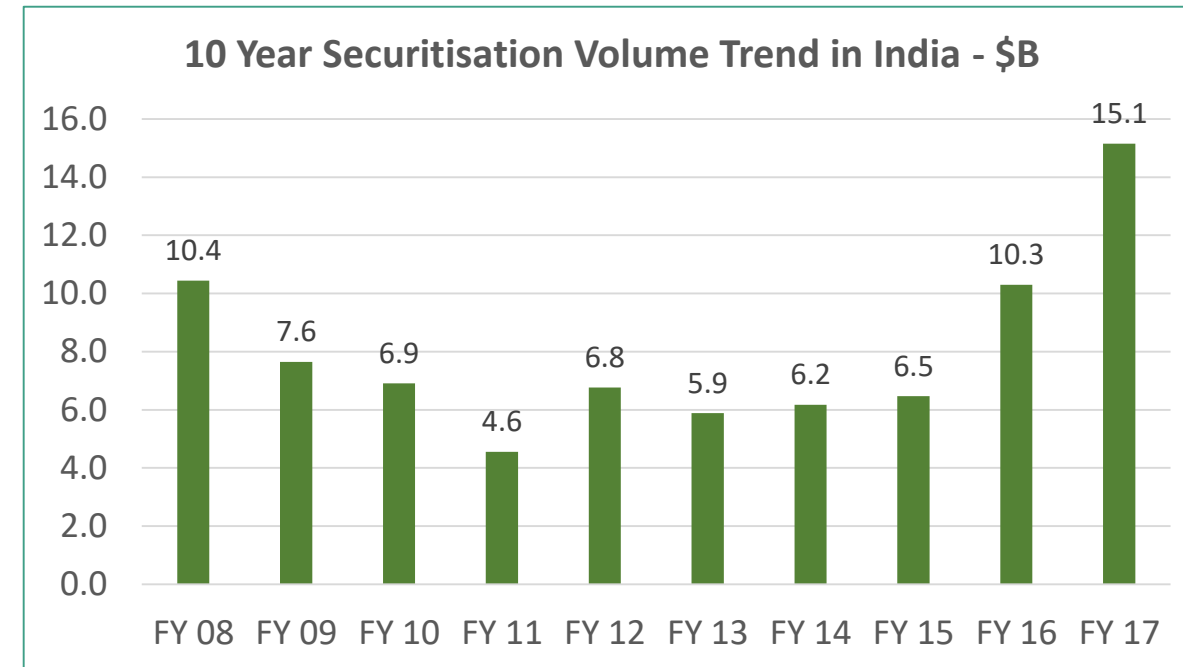
Blockchain + AI to eliminate Efficiency and Risk  
Management Trade-off in Asset Securitisation

# In a transformed industry, loan securitization volumes are up

In \$B	2007	2010	2016	2017 (Q1)
<b>Auto Loans</b>	801	713	1111	1119
% Securitised	23	16	18	17
<b>Credit Card</b>	1002	839	999	1009
% Securitised	32	26	13	12
<b>Student Loans</b>	589	856	1407	1438
% Securitised	39	28	13	13
<b>Commercial Mortgage</b>	3233	3207	3801	3956
% Securitised	23	21	17	16
<b>Residential Mortgage</b>	11240	10502	10266	10330
% Securitised	24	16	8	8

*Ten Years after Financial Crisis, Global Securitised Lending Transformed by Regulation and Economic Growth*

Copyright © 2017 by Standard & Poor's Financial Services LLC



*Securitisation Market Overview 2016-17*

Copyright © 2017 CRISIL Ltd., an S&P Global Company

## Securitisation wont lead to 2008 again – but at huge compliance costs, while main issues remain

Origination to Securitisation to CDOs (and there could be many layers of CDOs), then CDS to hedge – less information on the original asset

**Information Asymmetry**

Each step involved due diligence, each party creates an additional hedge/risk cover, plus rising compliance costs since 2008

**Layering of Costs**

Loan portfolio and underlying tranches are rated at a point in time and in due course do not appropriately reflect the underlying asset or the economy

**Portfolio Rating frozen  
in time**

Each step is substantially manual with long timelines and high costs, and near zero inter-operatbility across systems

**Long timelines and  
Transaction Costs**

# A Blockchain based platform is ideal solution to the problem

Transparency

Trust

Security



## One version of Truth

Services, Issuer, Investor (and Credit Derivatives market makers) all have exactly the same view of every single loan in the portfolio, eliminating any inter-entity or inter-system reconciliation requirement



## Comprehensive, tamper-proof Audit Trail

Every transaction on a Blockchain is immutable, thus providing a comprehensive, tamper-proof audit trail to regulators and auditors, as well as each subsequent investor



## Efficient Market – Better Valuation & Price Discover

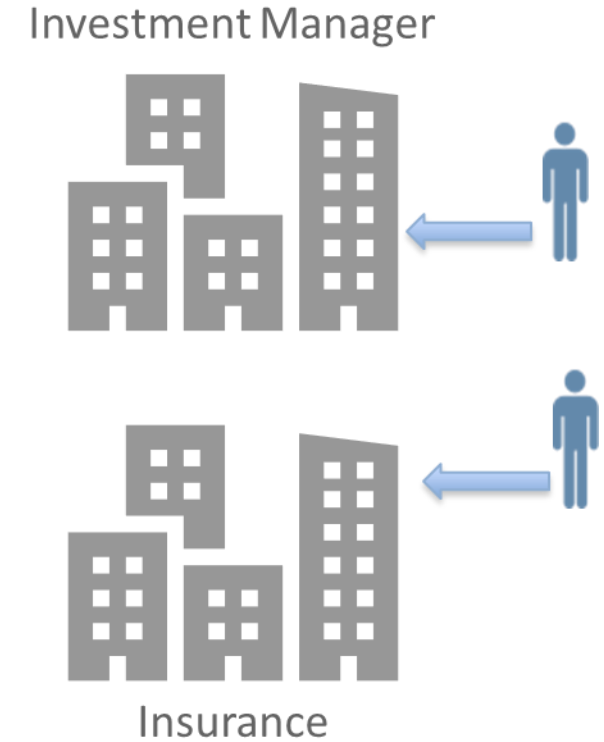
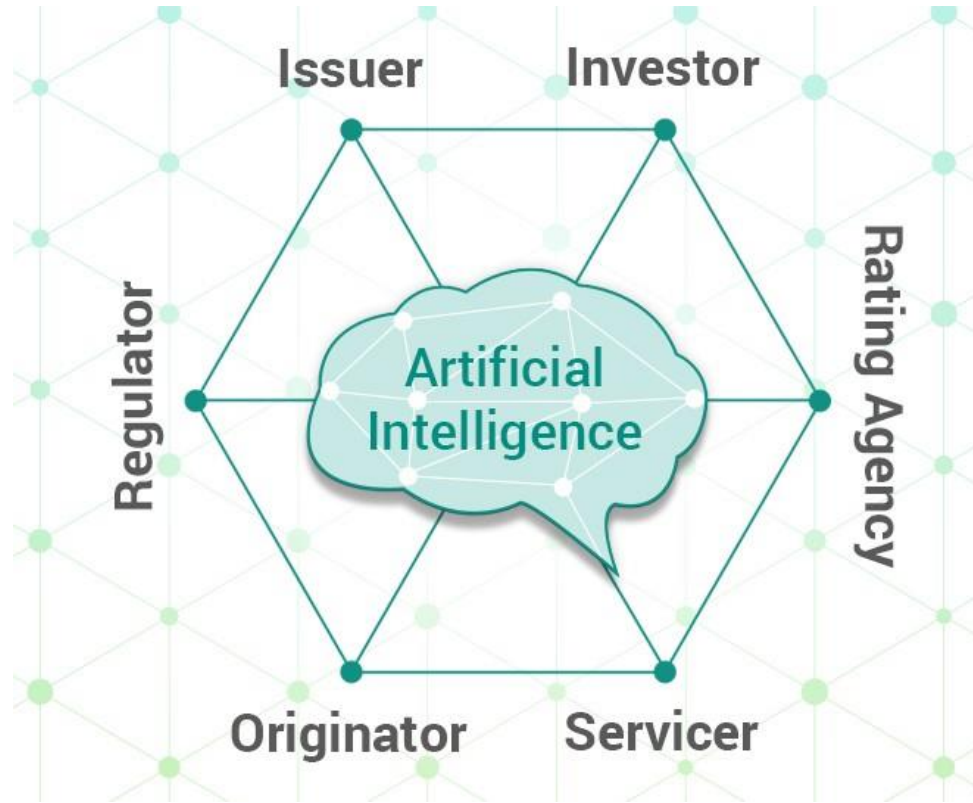
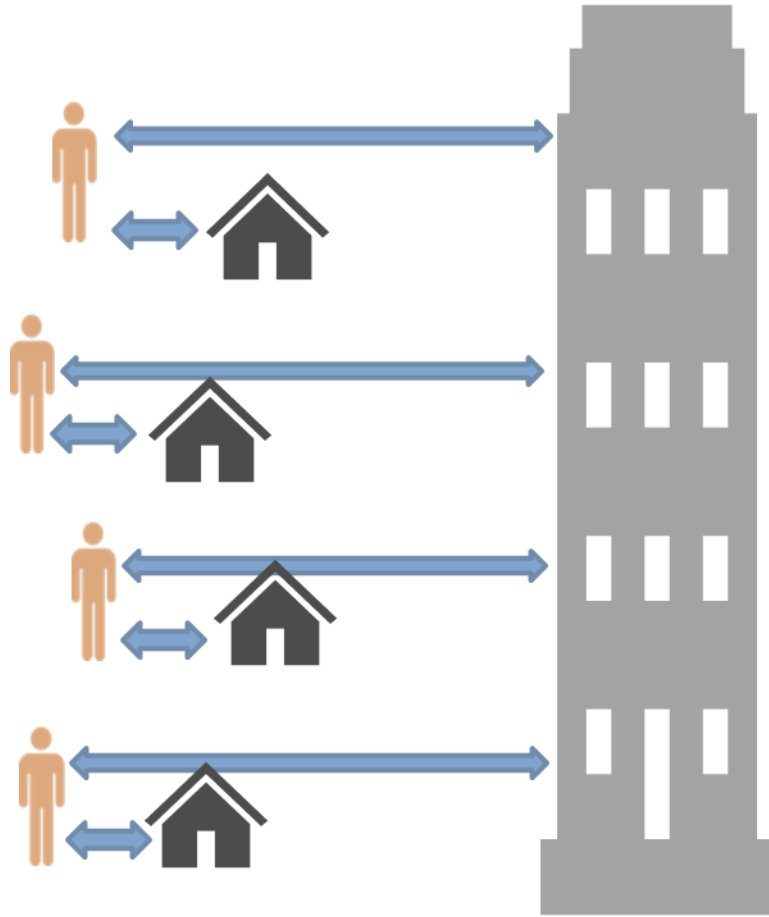
Transparency ensures more efficient market where 'mark to model' isn't a poor substitute for 'mark to market' due to lack of liquidity and information asymmetry



## Speed and Certainty

Integrated platform and execution of contracts through smart contracts (chaincodes in case of Hyperledger) ensures near real-time transactions

# eMulya Combines the 'Blockchain for Securitisation' benefits with AI



# At each step of Securitisation process, EMULYA improves efficiency and/or reduces risk

AI enabled **comprehensive due diligence & Contract-LMS reconcociliation**

Securitisation based on loan database and Manual Due Diligence of portfolio based on samples – eMulya offers AI driven review of individual loan contract and reconciliation with loan database before onboarding to emulya



More than 50% reduction in time for **structuring a securitization transaction**

Structuring of tranche and payment waterfall is still very manual and paper-based Process; error prone, which requires constant recon - Payment waterfall automatically triggered and executed once payments are received.

Real time rating of portfolio – the **underlying asset quality ticker!**

Rating is static, quality of portfolio is dynamic as rating of the portfolio by a rating agency at the time of creation of the pool - Rating agency model integrated with eMulya and use of AI for real time rating of portfolio



**Auto-execution of contractual terms** through smart-contract in case of trigger events

Investor doesn't have direct view into performance of loans and trigger events difficult to authenticate – eMulya would ensure Common view of portfolio and auto-execution of smart-contract in case of trigger events

**Lower cost for lenders, lower risk for investors** through efficient market

It is ironical that P2P lending startups are getting big valuations while NBFCs struggling for low cost funds – eMulya would bring lenders and investors on to a common platform with high level of trust, ensuring a better deal for credible lenders; better risk/reward for investors

In-D is Intain's Digitisation and Decisioning product that has been used in its Securitisation Blockchain, EMULYA, deployment. Details are provided in the Annexure.



# eMulya – Product Roadmap

## Phase 1 : Securitisation

- Phase 1A: Create a pool of loans, move to an SPV, create nodes for issuer (assuming issuer and lender are same) and investor
  - Comprehensive Due Diligence before onboarding using AI scanning through all loan contracts
  - 4000 Two-wheeler loans of a non-bank lender in a direct assignment securitization transaction with a scheduled bank as an investor - this has the lender and investor, but no SPV (Live by July 30<sup>th</sup>)
  - Add SPV and convert it into a Many-to-Many relationship (many lenders and many investors) (Live by Oct 30<sup>th</sup>)
- Phase 1B: Add Rating Agency and Regulator module
  - AI enabled continuous rating of the portfolio – requires a partnership with a rating agency
  - Complete by Dec, 2018

## Phase 2: Derivatives

- Inter-operability with another Blockchain or extension of eMulya?
- Create chaincodes for template based CDOs
- Develop customizable chaincodes for doing custom CDO contracts on Blockchain with ability to auto-execute
- Repeat the same for CDS (e.g. in case of default, payment should get auto-executed)

# Build your own Intelligent Blockchain with Intain

EVALUATE	PROTOTYPE	IMPLEMENT	OPERATE	PLATFORM AS A SERVICE (PAAS)
<p>Do you really need a Blockchain for your Use Case?</p> <p>Post the Enterprise and Eco-system integration how would the cost/benefit stack up?</p> <p>Estimated effort and projected execution plan?</p>	<p>Lean App Deployment approach to develop and learn in short time period</p> <p>Define scope to focus on what outcomes are being tested</p> <p>Ensure 2-8 week timeline and small budget</p>	<p>Setting up Blockchain Infrastructure on different Cloud platforms – private or public</p> <p>Set-up different transacting entities and develop Smart Contract for the transactions</p> <p>Development in Go language to reduce dependencies on SDKs (Fabric platform uses Go)</p> <p>Develop user friendly front-end with UX/UI best practices</p> <p>Use of Microservices architecture for flexibility, scalability and integration</p>	<p>Maintenance of the Blockchain infrastructure</p> <p>Leverage Smart Contract factory for facilitating additional transactions on the Blockchain</p>	<p>Hyperledger Fabric based Platform with complete infrastructure managed and maintained by Intain</p> <p>Option to chose from standard transactions or develop additional functionality</p> <p>Development and deployment of application</p> <p>Pay as you go</p>



# About Intain

# About Intain

**Centers :** Pune + Chennai + Singapore\*

**Technology:** AI + Blockchain

**Culture:** Start-up + Research Lab

**Investors:** Hamon Investment Group +  
Blockseed Ventures

**Securitisation on Blockchain** –  
emulya uses AI to onboard a loan  
contract on to its Blockchain  
platform where the securitization  
is done bringing together issuer,  
investor, rating agency

The logo for emulya, featuring the word "emulya" in a lowercase, sans-serif font. The letter "e" is green, and the rest of the letters are dark grey.

**Cognitive Automation** - Reduce cost,  
eliminate error and improve efficiency  
through:

- Document to Data – Combination of  
various Image Processing  
tools/techniques and NLP (**Digitisation**)
- Data to Decisions - AI based prediction  
of outcomes (**Decisioning**)

The logo for In-D, featuring the letters "In-D" in a bold, sans-serif font. The "In" is dark grey, and the "D" is green with a white outline.

\* Headquartered in Singapore, Lab /Development Center to commence Oct 2018

# Founding Team comprising of Financial Operations and Technology Leaders



**Siddhartha**, Founder and CEO

## Financial Services Operations

Siddhartha has held executive leadership and board positions in Financial Services operations and technology. He was the CEO of State Street HCL Services (SSHCL), where he set-up and scaled it up to a multi-city/country Custody and Fund Admin operations and served as the Chairperson of an FCA regulated Insurance Administrator in UK. In these roles, he has worked on using technology to eliminate the trade-off between efficiency and risk management pioneering an award winning 3-Lever BPM model.

Siddhartha is an MBA from SPJIMR, Mumbai and holds a B.Tech from NIT Warangal



**Sanjay Nishank** Executive Director and COO

## Financial Services Technology

Sanjay has led teams in blueprint and delivery of multiple end-to-end enterprise implementation and software product development programs in mortgage/retail banks, investment banks, and securities depositories with HCL, Cognizant and Infosys in India and Europe

Sanjay co-founded GREX, a fund raising platform for pre-IPO companies, a true FinTech before it was fashionable, which he was associated with from 2012 to 2017.

Sanjay is an Electrical Engineer who holds an MBA from IIM Bangalore.



**BS Anil** Chief Technology Officer

## Software Productions and Blockchain

Anil has worked as a technology architect for more than 20 years in India and the Silicon Valley, where he Designed and developed SAAS and Enterprise products for prestigious Silicon Valley and Global SAAS/IT companies.

Anil has been working on Blockchain and, in general, Distributed Ledger Technologies, and led successful implementation for a large Chinese firm in his last role, with a live in production release and two MVPs

As a US patent holder in database design, Anil has an untinted view into what are best use cases for Blockchain.



**Dr. Avinash Kumar Singh** Lead Consultant, Artificial Intelligence

## AI and Robotics

A Ph.D. in human-robot interaction, he completed his master's degree in Computer Science with a specialisation in Information Security. He is currently doing post-doctoral research on the ability of autonomous systems to understand their own limitations, at Umea University, Sweden.

Prior to this Dr. Singh was part of HCL's Machine Learning team, managing design of various solutions, for clients across financial services, manufacturing and healthcare.

# Board and Advisors



**Hugh Simon**, Director, Intain and CEO, Hamon Investment Group

Hugh established Hamon Investment Group in 1989. Over the last few years, Hugh has focused Hamon's fund management efforts on increasing its specialization Greater China and Asian emerging markets.

Formerly the MD and President respectively of Lazard's Hong Kong and Japan offices and a director of Lazard Investors in London, Hugh was responsible for establishing Lazard's offices in the Far East. Before joining Lazard in 1984, he worked for Schrodgers in London, Australia and Hong Kong for five years.



**Gary Miller**, Senior Advisor

Gary is an investment banking professional focused on the origination, structuring, and execution of financial transactions including capital raises and structured debt. Having started his career as a Credit Analyst, Gary started working in the Asset Securitisation space with JP Morgan, moving on to head Origination at Credit Agricole. Gary was subsequently MD at a boutique Asset Management firm and then has been evangelising adoption of Blockchain Securitisation space for last two years

Gary is an MBA and holds a Bachelor's degree in Economics from University of Texas, Austin

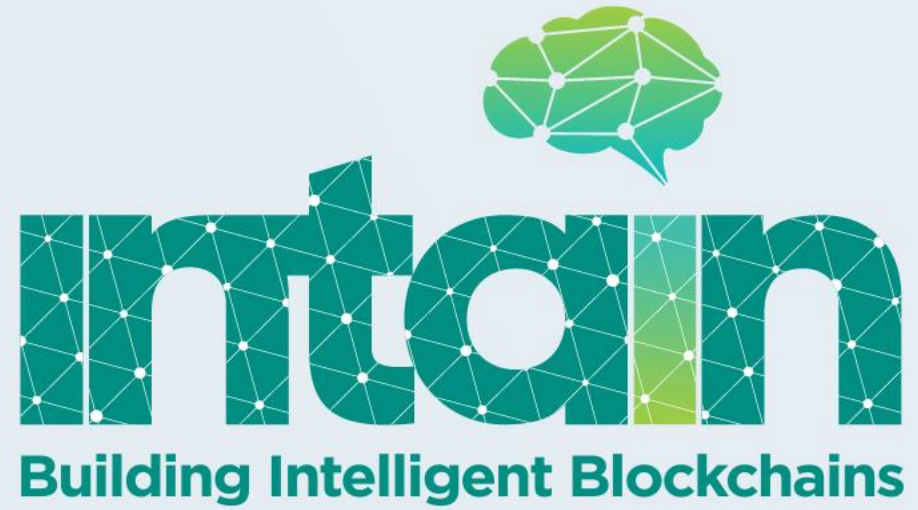


**B Ravishanka**, Senior Advisor –HR, Intain;

Ravi is currently working various technology startups and Product companies in the space of HR technology, Analytics and Financial domains as Advisor/Board Member.

An MBA from XLRI, India, Ravi has been the CPO/CHRO Deutsche Software, Mindtree Technologies and HCL Talentcare. Ravi brings with him an innate understanding of a technology start-up, having himself founded Lister Technologies.

In his various roles, he has led efforts in enhancing corporate social networks to digitizing HR by using AI, BOTS, gamifications and Analytics.



[explore@intainft.com](mailto:explore@intainft.com)