

# OPEN CREDIT ENABLEMENT NETWORK

Overview of the ecosystem and its capabilities

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# Acknowledgements

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# EXECUTIVE SUMMARY

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## India's Digital Lending Market – The Status Quo

The Indian digital lending market is expected to grow at a Compound Annual Growth Rate (CAGR) of 38%, and reach US \$350 billion by 2023 as a result of improved digital financial inclusion. While the demand for credit has increased, a sizable segment of consumers, including individuals, organisations and small businesses, remain underserved. For instance, the MSME sector which generates a significant proportion of India's credit demand is facing a credit gap of US \$330 billion.

India's credit demand remains unmet due to obstacles faced by both borrowers and lenders.

### Obstacles at the supply end:

- Complex and lengthy application processes lead to high turnaround times for loan applicants.
- Disadvantaged borrowers with few or no assets have a low likelihood of obtaining credit as formal lending institutions require collateral for security against loans.

### Obstacles at the demand end:

- Banks struggle to increase their consumer base due to high operational costs, leading to limited last mile connectivity.

## Open Credit Enablement Network (OCEN) – An Overview

In light of these obstacles, the government intends to digitise the entire lending process through the Open Credit Enablement Network (OCEN). The OCEN – along with the Account Aggregator (AA) Network consisting of platforms which facilitate sharing of financial data – is the most recent addition to India Stack (developed to facilitate a digital payments ecosystem).

The OCEN would function as a credit layer while the AAs would function as a consent layer. The OCEN is an open protocol infrastructure that facilitates interactions between various stakeholders involved in the credit value chain through a common digital language. AAs act as intermediaries that facilitate consented sharing of financial information on a real-time basis with lenders.

This framework represents a shift in the assessment of creditworthiness from an asset-based model to one based on continuous cash flow, through the use of digital credit trails and digital sales records. The OCEN optimises the risk assessment process for lenders by easing their access to reliable financial information of borrowers. In addition, it enables lenders to reach a bigger consumer base by partnering with Non-Banking Financial Companies (NBFCs) to leverage their reach, last mile connectivity, and technical capabilities. For example, NBFCs like Muthoot Finance and Bajaj Finance serve economically marginalised consumers who cannot otherwise receive loans from inflexible commercial banks.



## Use Cases

The OCEN has the potential to increase credit access for vulnerable sections of the population, MSMEs, and first-time borrowers. It enables lending institutions to offer low-cost and sachet-sized loans to the economically marginalised, who can leverage such credit lines to reduce their daily financial burden.

The OCEN will expand options for borrowers, connecting them to more suitable lending institutions, interest rates, and repayment models rather than relying on local banks. With the OCEN, online marketplaces and digital payment platforms will act as Loan Service Providers (LSPs). So, consumers will also have access to instant credit facilities while making purchases on e-commerce platforms like Amazon, Flipkart, etc.

## Governance and Implementation

To test its applicability and to ensure successful implementation, a pilot was launched facilitated by the Government e-Marketplace (GeM) portal. Two reference applications were designed for the pilot: the GeM Sahay and the GST Sahay. The GeM Sahay is a government e-marketplace platform which serves as a Loan Service Provider, while the GST Sahay app acts as a reference application (similar to BHIM for UPI). RBI provides the required regulatory support and guidance for the rollout of India Stack through two collectives, CredAll and Sahamati.

## Challenges

While the OCEN has seen significant progress, some challenges remain which may hinder its stated objectives. These include gaps in the risk assessment of borrowers, the lack of a digital trail for informal sector workers who primarily receive their wages in cash, and MSMEs' inconsistent digital cash flow due to their limited use of digital tools for financial planning. Additionally, the capacity building of Loan Service Providers, who are key stakeholders in the successful implementation of the OCEN, is of high significance.



# INTRODUCTION TO THE OCEN

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Since the launch of the **Unified Payments Interface (UPI)**, the government has explored similar digital public goods in other sectors.

### Background

- India has emerged as a pioneer in developing and deploying digital public goods at scale.
- It is one of the first developing countries to implement a population-scale digital ID initiative and an efficient digital payments infrastructure such as the UPI.
- Since the launch of the UPI in 2016, the government has looked to create similar digital public goods in areas such as digital lending, e-commerce, health care, and livelihoods.

### Context

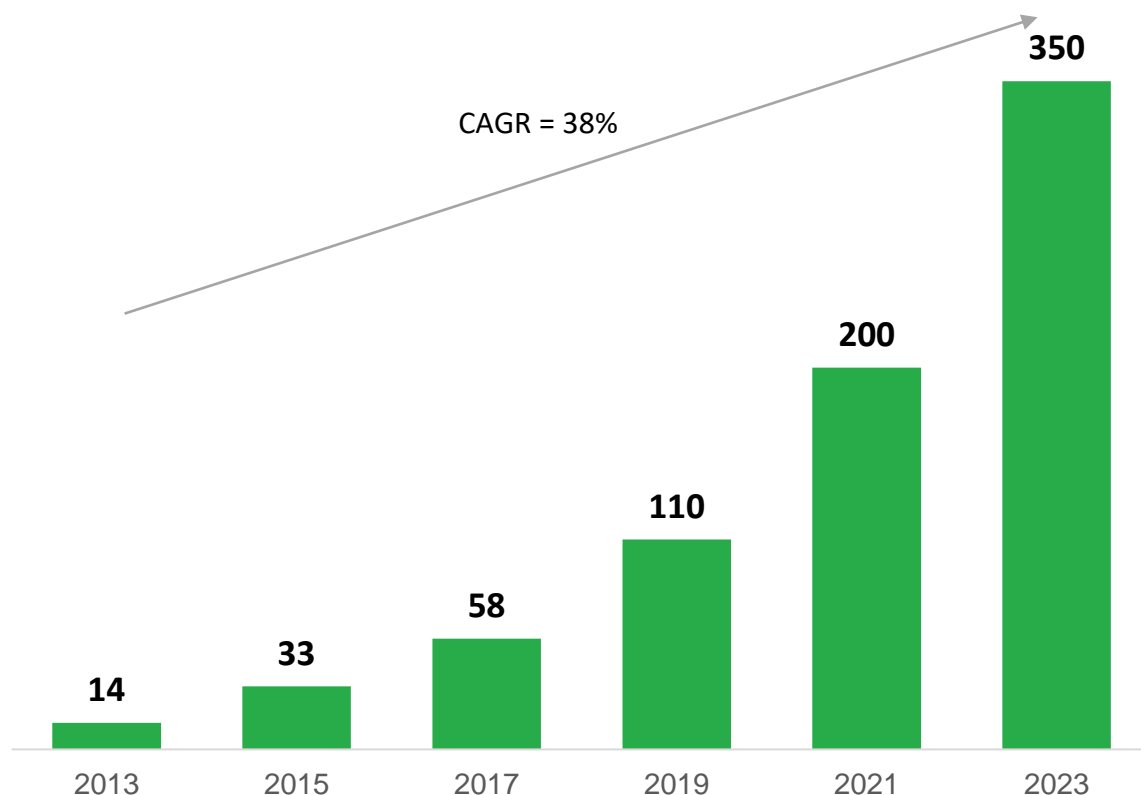
- This primer aims to provide an understanding of India Stack's lending and data sharing layers – **the OPEN CREDIT ENABLEMENT NETWORK (OCEN) and the ACCOUNT AGGREGATOR (AA) NETWORK** respectively.
- The objective of this primer is to:
  - Build a case for the OCEN and AA in the current lending landscape.
  - Understand the underlying principles, use cases and governance of OCEN.
  - Understand the role philanthropic organisations can play in increasing the adoption of the OCEN.





India's digital lending market is anticipated to grow at a 38% CAGR to **\$350 billion** by 2023, driven by its population's growing entrepreneurial and technological capabilities.

### Digital lending market in India (in US\$ billion)



Source: Statista 2022

### Growth drivers

**785% CAGR**

increase in UPI transactions between 2017 and 2020 (PwC 2020).

**70% increase**

in mobile and internet banking transactions per 100 people between 2015 and 2020.

**18.5% CAGR**

rise in number of MSMEs between FY 2019 and FY 2020, leading to a high demand for credit (IBEF 2020).

**\$8 billion**

raised by India's fintech startups with lending tech and payments receiving a major share (Inc42 2022).

**43.7 crore**

'no-frills' bank accounts with over 1.46 lakh crore deposits (SBI 2021).



However, India faces a **credit gap of \$330 billion** due to high-ticket loans, complex loan procedures, high turnaround time, limited accessibility and high-cost acquisition processes.



**\$330 billion**

**credit gap**

faced by India's MSME sector  
(IFC 2021).



**40.8 million** of the population were credit-unserved while  
**16.4 million** were credit-underserved,  
of the country's **81.4 million** credit-eligible people (Inc42 2022).

Challenges leading  
to these outcomes



**Buyers**

- High collateral and asset requirements.
- Difficulties with loan documentation.
- High turnaround time for loan disbursement.
- Lack of low-ticket size loans.
- Lack of personalised attention from traditional banks.

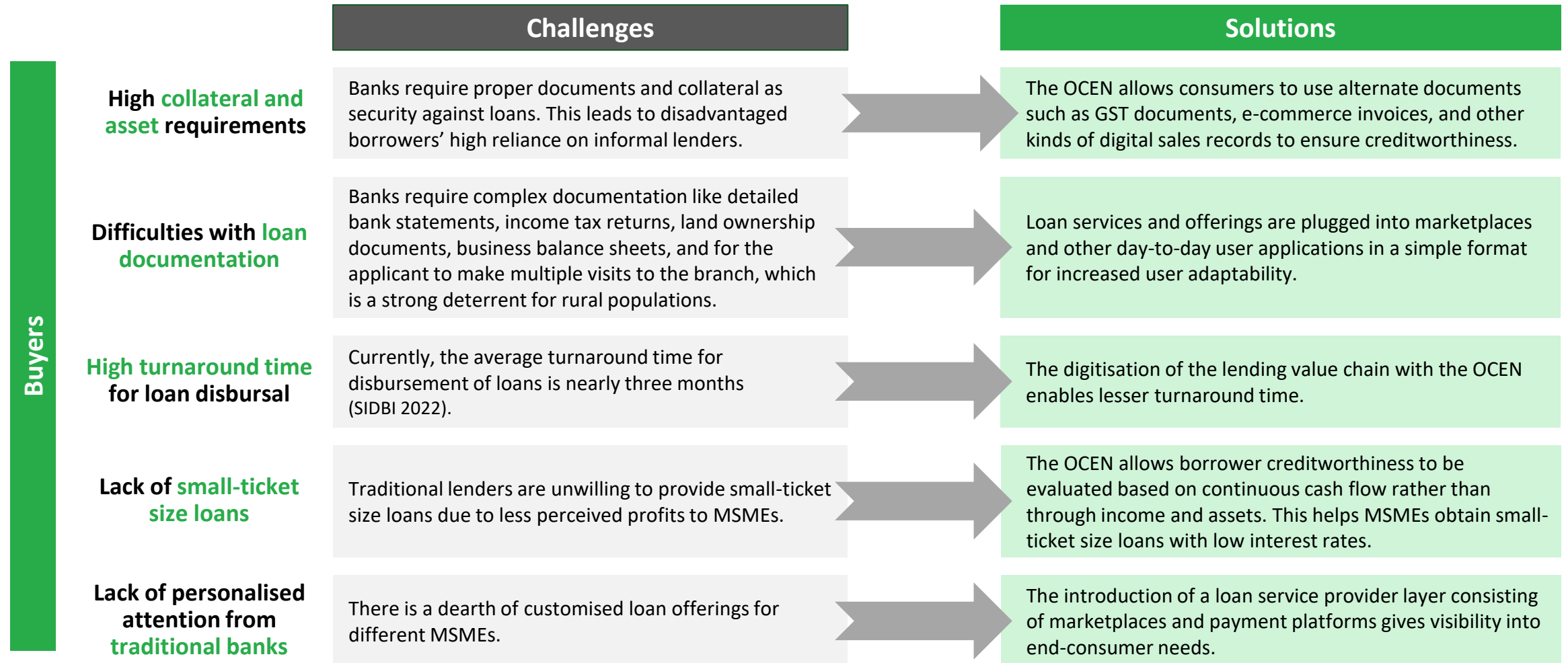


**Lenders**

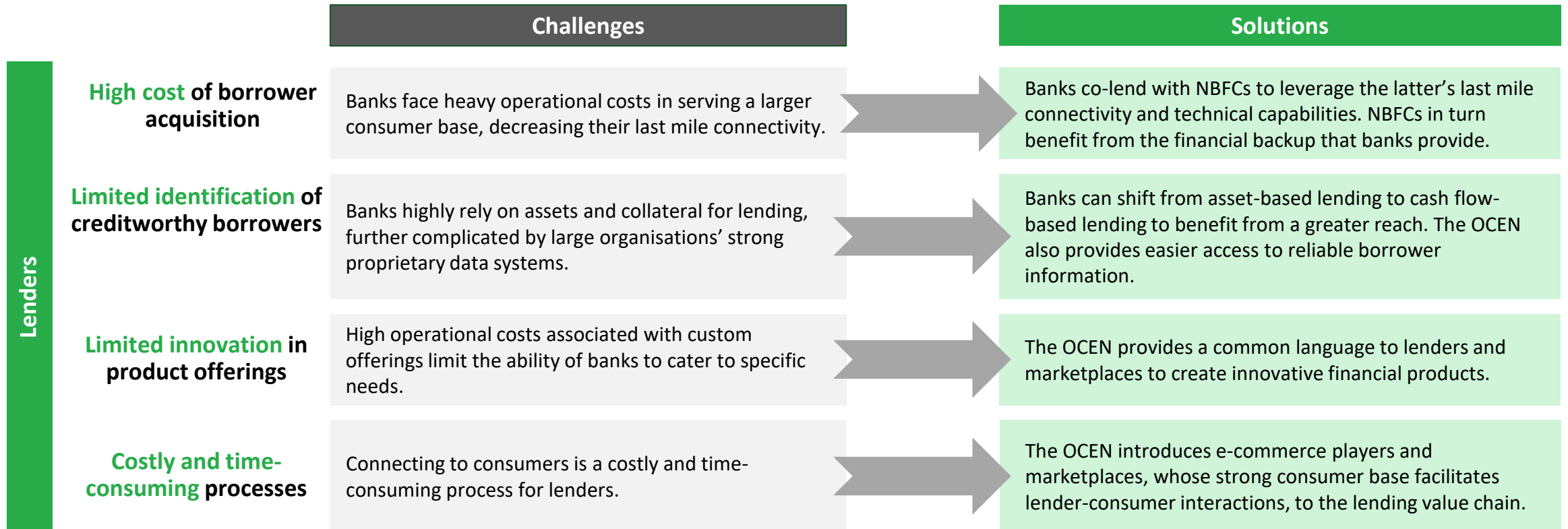
- High cost of borrower acquisition.
- Limited identification of creditworthy borrowers.
- Limited innovation in product offerings.
- Lending purely via asset-based models, due to lack of data for cash flow-based lending.



The OCEN aims to mitigate these challenges by reducing **reliance on collaterals**, digitising the loan process to improve turnaround time, and introducing simpler processes for borrowers.



It also solves challenges in the lender ecosystem by reducing processing time and operational costs, **improving access to borrowers' financial data**, and enabling partnerships.

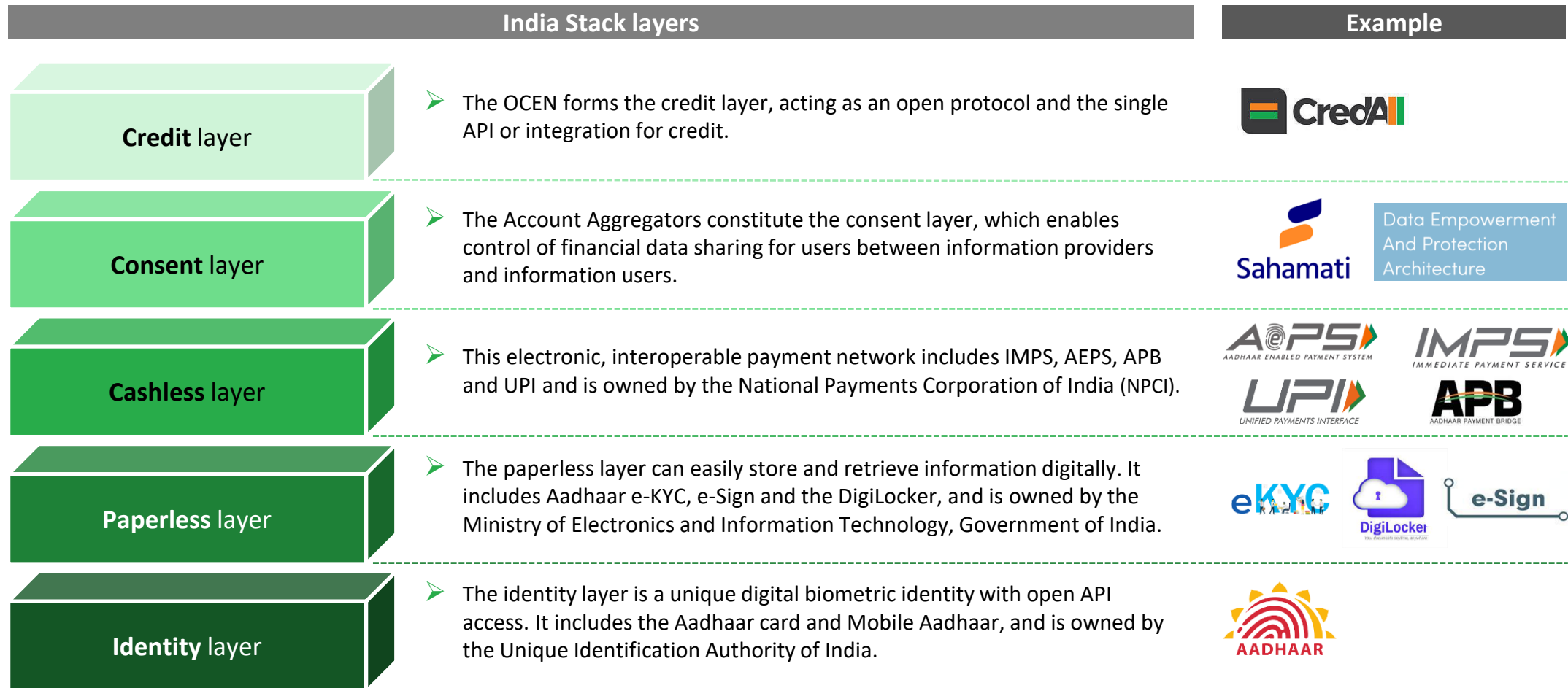


# OVERVIEW OF THE OCEN

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## Credit (OCEN) and Consent (Account Aggregators) layers represent the next stage in the evolution of India Stack.



# The OCEN is an **open protocol** that facilitates interactions between different stakeholders in the lending value chain.

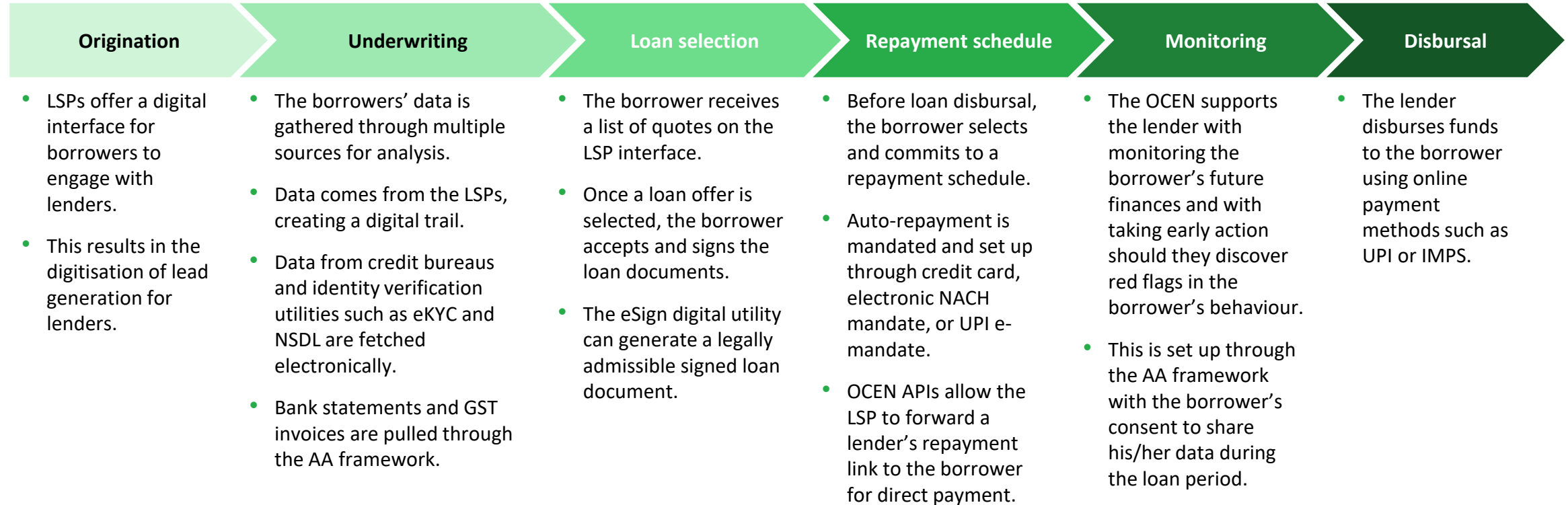
The OCEN facilitates interactions between stakeholders involved in the credit value chain by creating a common language through a set of APIs. It aims to move the lending ecosystem in India from an **asset-based model to a cash flow-based model**.

	Loan service providers (LSPs)	Technology service providers	Account Aggregators	Underwriting modelers	Lenders	Borrowers
OCEN Actors	<ul style="list-style-type: none"> <li>Any consumer-facing digital platform (web- or application-based) with a customer base.</li> </ul>	<ul style="list-style-type: none"> <li>Fintech companies support the onboarding of platforms onto the OCEN protocol and to roll out tailored credit programmes.</li> </ul>	<ul style="list-style-type: none"> <li>Data intermediaries that act as consent brokers, allowing lenders quick access.</li> </ul>	<ul style="list-style-type: none"> <li>Work to find out the level or degree of vulnerability in terms of non-payment and late payment of dues.</li> </ul>	<ul style="list-style-type: none"> <li>Banks, NBFCs and small finance banks provide capital and access to core banking networks.</li> </ul>	<ul style="list-style-type: none"> <li>MSMEs or individual consumers will leverage credit options available within the LSPs' platforms through secure digital processes.</li> </ul>
Their role	<ul style="list-style-type: none"> <li>LSPs provide low-cost distribution and bring in the knowledge of the local and customer contexts.</li> </ul>	<ul style="list-style-type: none"> <li>Enable stakeholders to utilise the OCEN APIs along with other components of India Stack.</li> <li>Provide support with technical implementation and adoption.</li> </ul>	<ul style="list-style-type: none"> <li>Plug in critical digital infrastructure for lending.</li> </ul>	<ul style="list-style-type: none"> <li>Support the assessment and decoding of various raw data signals captured through digital trails.</li> </ul>	<ul style="list-style-type: none"> <li>Lenders utilise the LSP infrastructure to increase last mile connectivity and provide tailored credit solutions.</li> </ul>	<ul style="list-style-type: none"> <li>Borrowers get connected to multiple lenders through one platform.</li> </ul>

OCEN is not a product or a service but a set of standards.



## The loan process, from origination and underwriting to repayment, is **digitised**.





This model shifts lending from an asset-based to a **cash flow-based model**.

### Collateral for asset-based lending



Real Estate



Inventory Management



Fixed Deposits



Investments in Equity Markets



Other Tangible Assets



### Collateral for cash flow-based lending through the OCEN



Accounts receivable such as purchase orders and bank statements.



GST invoices or purchase orders.



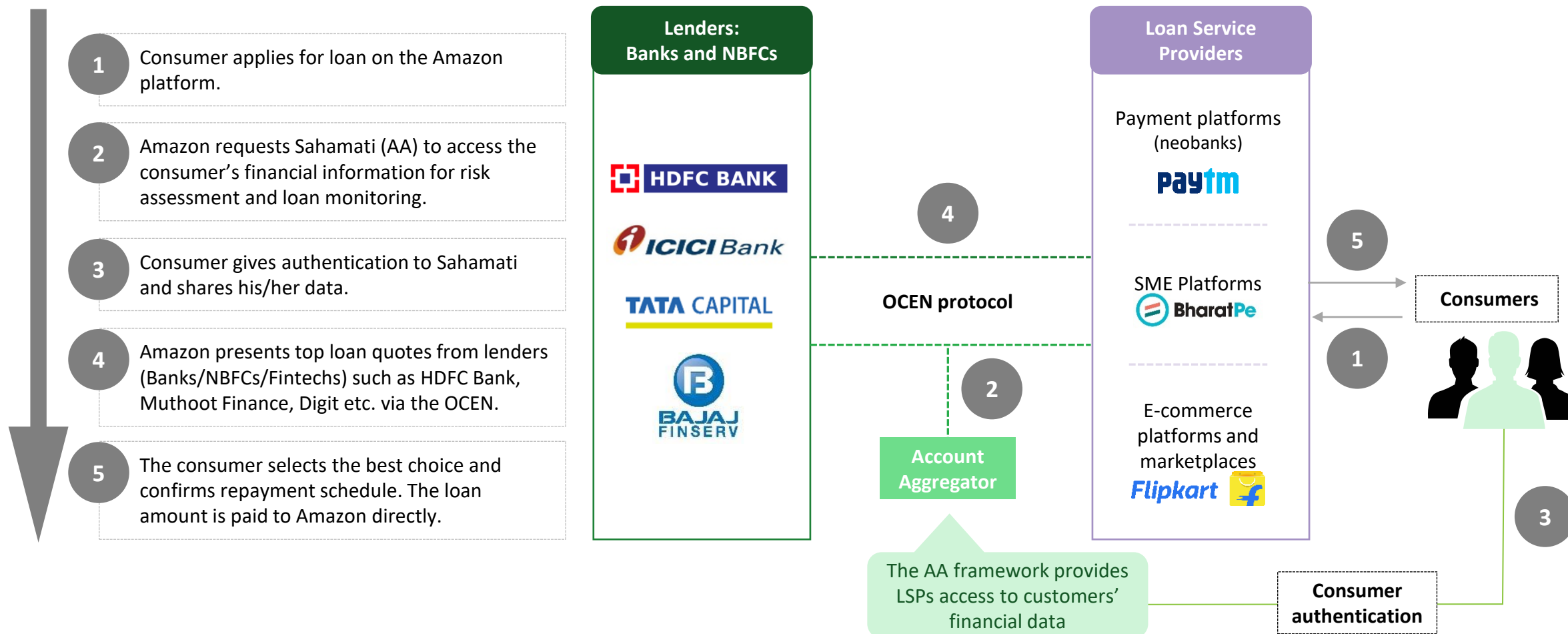
Digital trail of credit and sales from e-commerce applications.



Additionally, data from LSP platforms (Uber, Swiggy, Amazon etc) such as reviews, number of rides, number of orders etc. supplement the individual's creditworthiness.

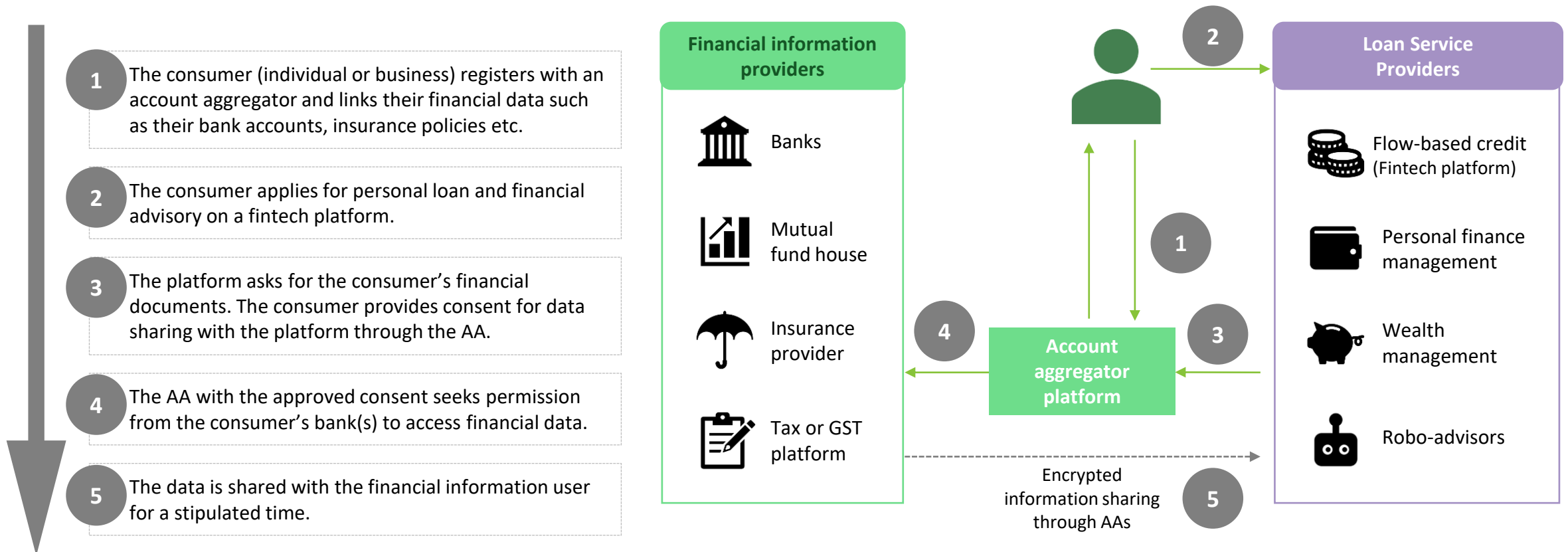
The OCEN revolutionises credit delivery to the end-user by introducing LSPs as new touchpoints, embedding lending within e-commerce offerings.

### Credit lending process with the OCEN

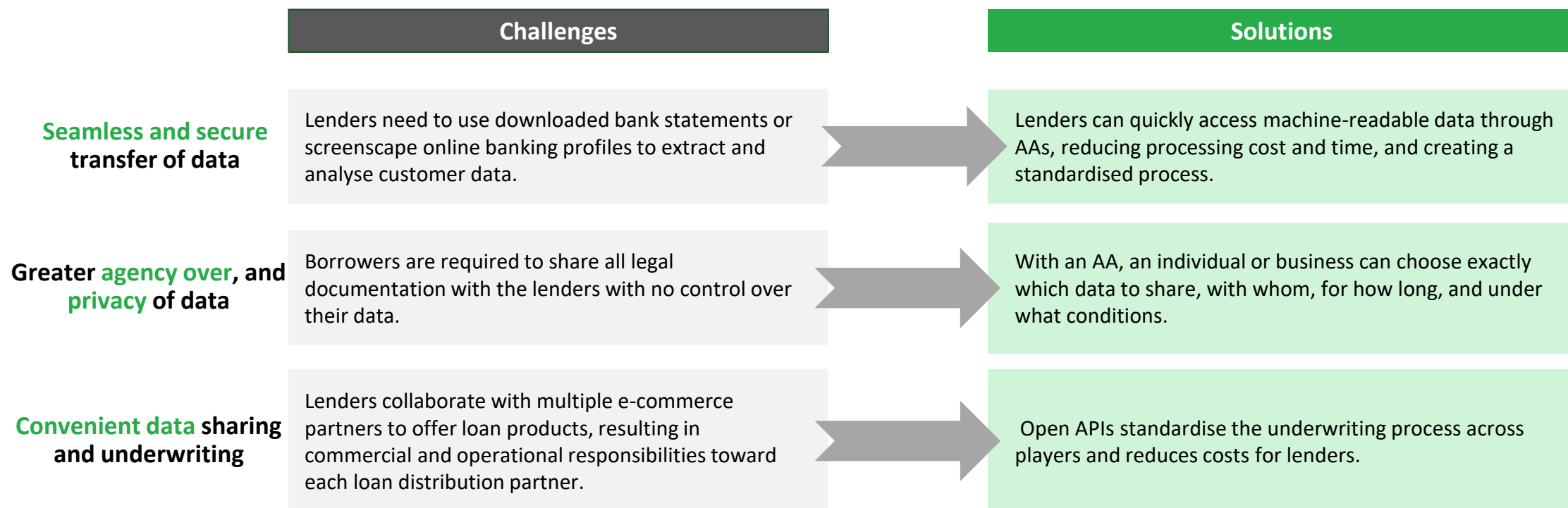


**AAs facilitate consented sharing of financial information on a real-time basis to lenders, optimising the risk assessment and loan approval process.**

### Account Aggregator framework for sharing financial information



## AAs enable safe and quick access to data while facilitating **greater data privacy** for users.




# USE CASES OF THE OCEN

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## SOS Organics, a self help group (SHG) that sells organic products online, leverages the OCEN for a quick, collateral-free loan for a large purchase order to buy raw materials in bulk.

Profile	Current challenges	Opportunities with the OCEN
 <p>Name: <b>SOS Organics</b> Size: <b>40 women</b></p> <p>Location: <b>Almora, Uttarakhand</b></p> <p>Profession: <b>SHG that sells indigenous organic cosmetic products through Amazon and, recently, through their own website.</b></p> <p>Assets: <b>Rents a manufacturing space and equipment.</b></p> <p>Requirement: <b>They have a purchase order of 100 units from a corporate firm and require a loan to purchase raw materials.</b></p>	<p><b>Cash flow-based model</b></p> <ul style="list-style-type: none"> <li>• Faces challenges in accessing credit from banks and moneylenders due to lack of collateral and other assets.</li> </ul> <hr/> <p><b>Access to multiple lenders</b></p> <ul style="list-style-type: none"> <li>• Options are limited to banks in their physical vicinity.</li> <li>• Required to visit multiple banks to receive and compare customised quotes.</li> </ul> <hr/> <p><b>Short turnaround time</b></p> <ul style="list-style-type: none"> <li>• Applying for a bank loan by providing extensive documentation and waiting weeks for it to be processed.</li> </ul> <hr/> <p><b>Automatic repayments</b></p> <ul style="list-style-type: none"> <li>• After securing the loan from banks, they forward the amount to the buyer for the product. During the loan period, the group makes regular deposits to the bank.</li> </ul>	<ul style="list-style-type: none"> <li>• Applies for a loan through the OCEN interface using their digital trail (invoices), GST invoices and recent purchase orders.</li> </ul> <hr/> <ul style="list-style-type: none"> <li>• Selects the products and applies for a loan directly on an e-commerce platform, leading to competitive offers and interest rates.</li> <li>• The group compares and chooses from a list of loan providers.</li> </ul> <hr/> <ul style="list-style-type: none"> <li>• Through the AA framework, the group shares their documents with one click. The underwriting and turnaround time is reduced to less than a few hours.</li> </ul> <hr/> <ul style="list-style-type: none"> <li>• Through the OCEN, the amount gets transferred directly to the seller's account. The loan deposit is automatically deducted each month from the group's business account at predetermined intervals.</li> </ul>



**Mohan, an Uber driver, utilises the OCEN for a **small sachet-sized loan**; Meera, a delivery woman, pays her child's school fee through an OCEN loan; their customer reviews add to their creditworthiness.**

Profile	Current challenges	Opportunities with the OCEN
 <p>Name: <b>Mohan</b> AGE: <b>34</b></p> <p>Location: <b>Delhi NCR</b> Profession: <b>Driver who works with online mobility apps (Ola and Uber).</b> Requirement: <b>He needs a loan of ₹1,000 for petrol.</b></p>	<p><b>Sachet-sized loans</b></p> <ul style="list-style-type: none"> <li>• He has limited cash as most of his customers pay him digitally. He has trouble meeting everyday expenses.</li> </ul> <p><b>Access to lenders</b></p> <ul style="list-style-type: none"> <li>• He cannot avail a flexible loan for such a small amount from the bank, so he must borrow from family or friends.</li> </ul> <p><b>Informal lending</b></p> <ul style="list-style-type: none"> <li>• He does not have the option to get a formal loan, so he must ensure he is connected with friends and family for high-interest loans.</li> </ul>	<ul style="list-style-type: none"> <li>• He takes a sachet-sized loan through the OCEN interface to meet this immediate expense.</li> <li>• His credit strength is good due to a good record of daily digital financial transactions. So, he can quickly procure a loan with the OCEN.</li> <li>• In addition to his financial data and digital trail, his Ola and Uber data (reviews, ratings etc.) can also be shared to determine his creditworthiness.</li> </ul>
 <p>Name: <b>Meera</b> AGE: <b>26</b></p> <p>Location: <b>Mumbai, Maharashtra</b> Profession: <b>Food delivery partner working with Swiggy.</b> Requirement: <b>Needs to pay ₹5,000 as her daughter's school fee and has savings of ₹20,000.</b></p>	<p><b>Reduced financial burden</b></p> <ul style="list-style-type: none"> <li>• Relies on friends, family or informal moneylenders to pay her child's school fee.</li> </ul> <p><b>Access to low-cost loans</b></p> <ul style="list-style-type: none"> <li>• The school offers a discount on bulk payments, however, she can avail it only by spending a large portion of her monthly income.</li> </ul> <p><b>Access to additional benefits</b></p> <ul style="list-style-type: none"> <li>• Or, she has to use a large portion of her savings (25%) to cover this expense.</li> </ul>	<ul style="list-style-type: none"> <li>• She applies for a loan through the OCEN (based on her digital trail and ratings on Swiggy) making the payment directly to the school.</li> <li>• She can avail the discount by paying the fee in bulk through a consumer loan available at a low-interest rate, without it becoming a financial burden.</li> <li>• She can cover this expense with a consumer loan, without having to dip into her savings.</li> </ul>





# GOVERNANCE AND IMPLEMENTATION

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## The OCEN is built on **seven core principles** that facilitate credit flow.

The design allows for interoperability and flexibility between the credit products and technology implementation.

### Interoperability

### Standardisation

Loan products, processes and underwriting are standardised and serve as common denominators to all loans.

### Layered Innovation

The OCEN is an addition to India Stack's three foundational layers — Aadhaar, Account Aggregators and UPI.

### OCEN Design Principles

### Openness

Every LSP that integrates with the open APIs gets access to all lenders implemented with OCEN protocols, and vice versa.

### Security

The OCEN protocol enforces strong encryption and authentication requirements to shield the data of the entire loan lifecycle.

### Diversity



The OCEN allows players in the ecosystem to collaborate, innovate, and meet the needs of the extremely diversified MSME sector.

### Embeddability

The OCEN is designed to allow the loan application process to be embedded in everyday platforms.



While the RBI is responsible for the complete governance of India Stack, two network facilitating organisations – CredAll and Sahamati – have been set to ensure the implementation and adoption of the OCEN and AA Network.

Layer	Network facilitating organisation	Type	Responsibilities
Open Credit Enablement Network		Non-profit or collective	<ul style="list-style-type: none"> <li>• Drive the awareness and adoption of the OCEN.</li> <li>• Ensure the implementation of the OCEN and give industry participants access to the new protocol.</li> <li>• Educate stakeholders, maintain publishing guidelines and principles, connect technology service providers with lenders and LSPs, help LSPs create business cases, and empanel certification agencies.</li> </ul>
Account Aggregator		Non-profit or collective	<ul style="list-style-type: none"> <li>• Support fintechs and entrepreneurs to adopt public APIs and become financial information providers and users.</li> <li>• Manage the central registry, provide certifications, and resolve disputes.</li> </ul>



## Two reference applications have been designed for the OCEN's pilot, offering small businesses credit solutions based on invoices raised on governmental marketplaces.

### OCEN pilot

- The OCEN's pilot was launched on GeM (Government eMarketplace) portal in May 2021.
- The GeM was launched in 2016 as an end-to-end marketplace for open, efficient and transparent procurement of goods and services by the Central and State Governments. In six years, GeM has registered a total procurement volume of more than ₹2.45 lakh crores, out of which MSME sellers, women sellers and start-ups have collectively contributed about 60%.

### To facilitate credit solutions using purchase order data on the marketplace

#### GeM Sahay

- The GeM Sahay acts as an LSP and facilitates credit solutions for small businesses.
- It provides access to loans on the basis of invoices or purchase orders.
- It retrieves relevant data – including transaction data – directly from GeM to paint an accurate picture of the supplier's real time financials.

### To facilitate credit solutions using invoice discounting

#### GST Sahay

- The GST Sahay app was launched as a reference application (such as BHIM for UPI) to further the use case of the OCEN.
- Currently, the invoice-discounting use case, where a merchant can receive loans against outstanding invoices, is ready for implementation on the Sahay application.

### Lenders integrated with the OCEN

#### Traditional banks



#### Fintechs



#### NBFCs



# CHALLENGES FOR THE OCEN

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## Impediments to the successful implementation of the OCEN are borrower debt traps, lack of digitisation of wages for the informal sector, and need for capacity building of LSPs.

### Challenges for the OCEN

#### 1 Debt trap

- Currently, indebted households and businesses continue to take loans to repay their existing debts, leading to a debt trap. This can be attributed to the poor assessment of their creditworthiness and the high penalty fees associated with loans.
- Even with the OCEN, risk assessment of such borrowers will be a challenge.

#### 2 Informal sector paid wages in cash

- The informal sector is largely paid in cash. Their utilisation of bank accounts is only limited to the withdrawal of government benefits.
- As such, they do not have a formal credit trail, which makes it challenging for the OCEN to provide cash flow-based loans to these segments.

#### 3 Lack of digitisation in small businesses

- Lack of use of digital tools for inventory management, savings, financial planning and others makes it challenging for MSMEs to maintain a consistent cash flow for loans through the OCEN.

#### 4 Capacity building of LSPs

- The success of the OCEN is contingent on the integration of e-commerce platforms as loan service providers, and thus, their capacity building.

#### 5 Lack of digital footprint at the bottom of the pyramid

- Digital financial inclusion, while having improved over the years, is still an area of concern at the bottom of the pyramid.



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