d·local

Authentication, 3DS and fraud prevention in emerging markets

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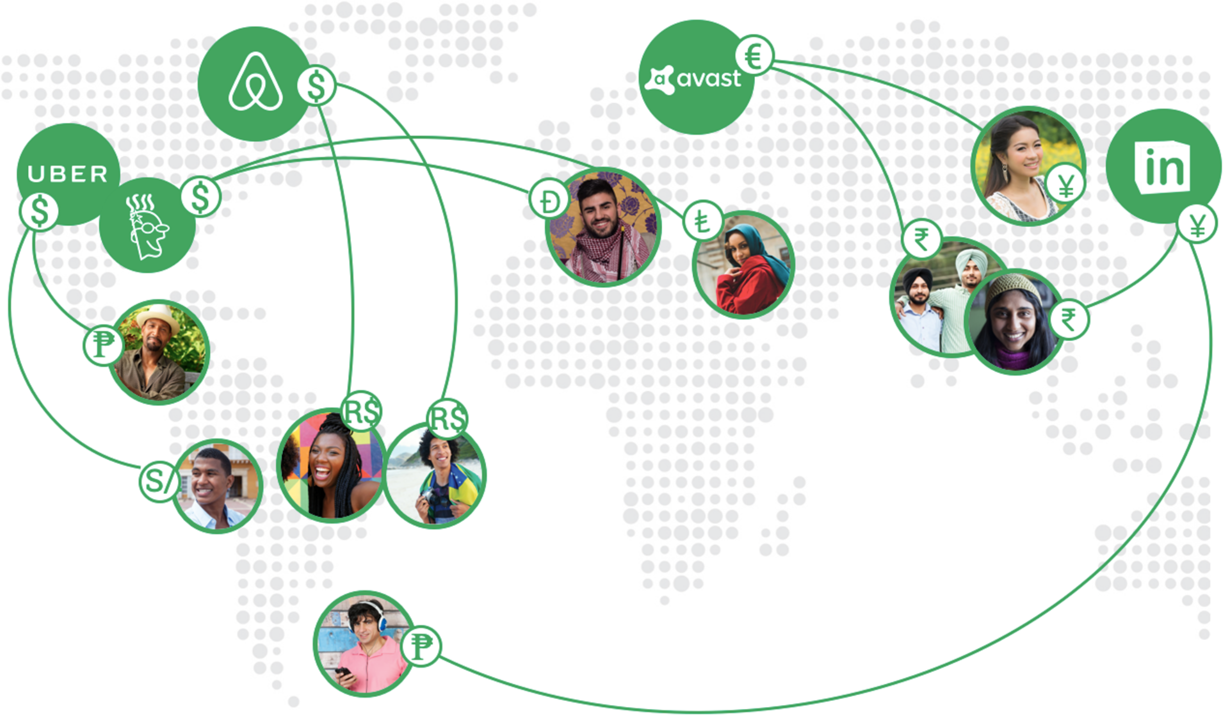
Today’s session contents

1. dLocal: What we do & who we are
2. Authentication, 3DS and fraud prevention in emerging markets
   a. Overview
   b. Adoption
   c. Status
   d. Strategies
3. Summary & Key Takeaways

What we do:

We process payins and payouts locally in emerging markets in over 30 currencies

while settling with merchants in EUR, USD or local currency



Who we are

DLO
Nasdaq Listed Company

1 API
All-in-one

EM
Focus on
Africa, Asia & Latin America

What we offer

600+
Local payment
methods

Solutions
Payins
Payouts
Direct Issuing
Fraud Prevention
Marketplace

2B+
Consumers unlocked

What our customers value the most

Simple & fast market entry

Without local entity, with dLocal as your trusted partner in emerging markets

Local payment processing

Which maximizes reach & checkout completions

Automated fund repatriation

To USA, Europe, China and all of our local markets

Secure, enterprise-class platform

With 1 API access

amazon mailchimp Uber DiDi Booking.com Dropbox GoDaddy WiX

ZARA Banggood.com Tripadvisor earthport payment network Constant Contact NIKE mi

Authentication, 3DS and fraud prevention in emerging markets

1

Overview

SCA / 3D-Secure for fraud prevention

2

Adoption

Drivers for successful adoption of SCA in Emerging Markets

3

Status

Of SCA and 3DS in Emerging Markets

4

Strategies

Alternatives & adopting a strategy for Emerging Markets

Authentication, 3DS and fraud prevention in emerging markets

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Defining SCA

Something the customer KNOWS	Password, Pin, Swiping path
Something the customer IS	Fingerprint, facial, voice recognition
Something the customer HAS	Mobile phone (evidenced by OTP, signature or QR code), token generator

Card Authentication: 3D-Secure

1. Payer enters card details at merchant's site

2. Payer authenticates with the issuer using an additional factor

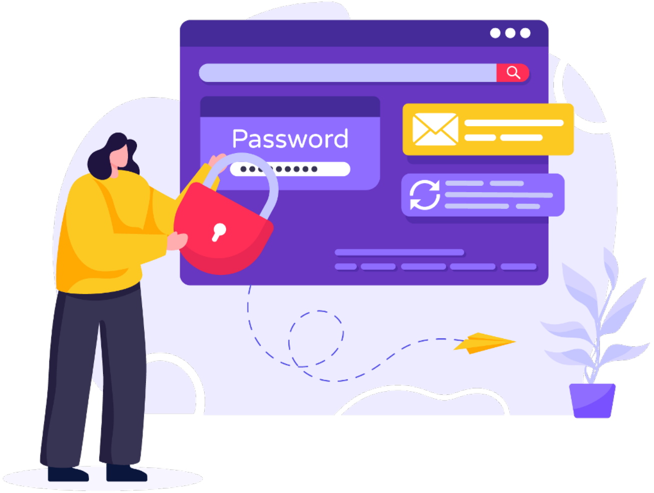
3. Purchase complete!

Card Authentication: 3D-Secure 2.0

Version 2 has additional benefits over V1:

- Sophisticated authentication: OOB / Biometrics vs. static passwords or OTPs.
- Support for Mobile: SDKs vs browser-only support.
- Support for frictionless flows
- Enriched dataset for authentication & authorization
- Support for exemptions (v2.2)

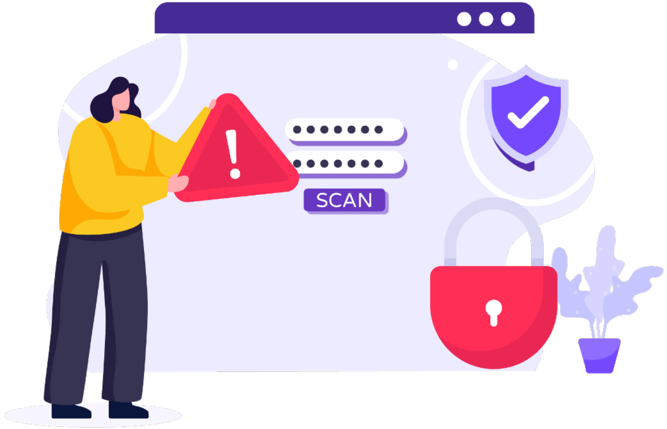
Europe / PSD2 - results so far



- Authentication success rates are low (68%)
- Challenge rates are high (72%)
- Abandonment rates are high (16%)

* Microsoft, data for Oct 2021 - EU markets excluding UK

Europe / PSD2 - strategies



Merchants who have acceptable fraud rates can improve conversion by:

- Using exemption flagging where available to avoid authentication
- Avoiding the challenge by sharing data with issuers and using trusted listing
- Improving the challenge experience by using delegated authentication

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SCA - What determines consumer adoption?

(Security **GAINS** - Added **FRICTION**) vs Available **ALTERNATIVES**

Gains

- Fraud prevention
- Perceived security

Friction

- Technology
- Implementation
- Regulation

Alternatives

- Other merchants
- Other payment alternatives (APMs)

Questions merchants need to ask

- Which emerging markets actively use/enforce authentication, and why?
- Are there any exemptions to authentication?
- What is the market's support for authentication technologies / features?
- How can I prevent fraud when authentication is not viable?
- Should I offer APMs?

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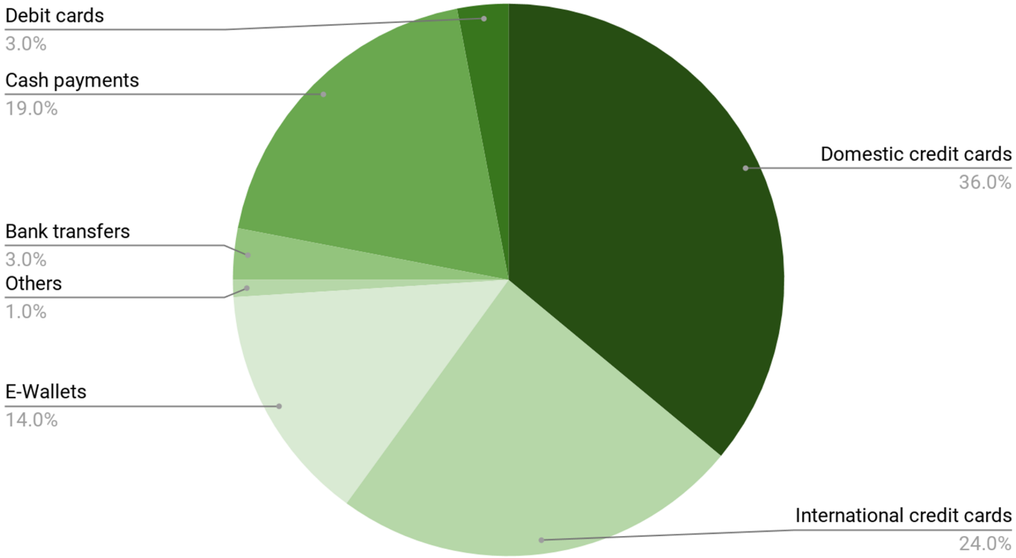
Status: 3DS in Emerging Markets

3D-Secure usage in LATAM

Country	Details
Brazil	● Authorization is optional for Credit, required for Debit Card payments ● Brazilian Central Bank regulation ● 3D Secure Drop rates: over 60% ● 3DS 2 is still being rolled out: ○ Most issuers support, however some large issuers are still in development ○ Most acquirers support
Mexico	● 3DS is optional for all cards ● Although fraud rates are relatively high, merchant adoption remains low ● Most Mexicans have probably never completed a 3DS flow ● With high fraud/chargeback rates, acquirers may force merchants to use 3DS (rare) ● Industry support for 3DS v2 by Apr 22
Chile	● Authentication was required for Debit, however this is no longer the case ● Done via WebPay, Transbank's authentication solution launched in 2008 ● Conversion rates are affected by adding the authentication process, roughly 30% drop ● 3DS2 progress: partial for intl. cards, only via WebPay

Brazil

eCommerce Payment Mix



Boleto Bancario

Boleto Bancário

Online Bank

BANCO DO BRASIL Itaú Bradesco Santander CAIXA

Credit

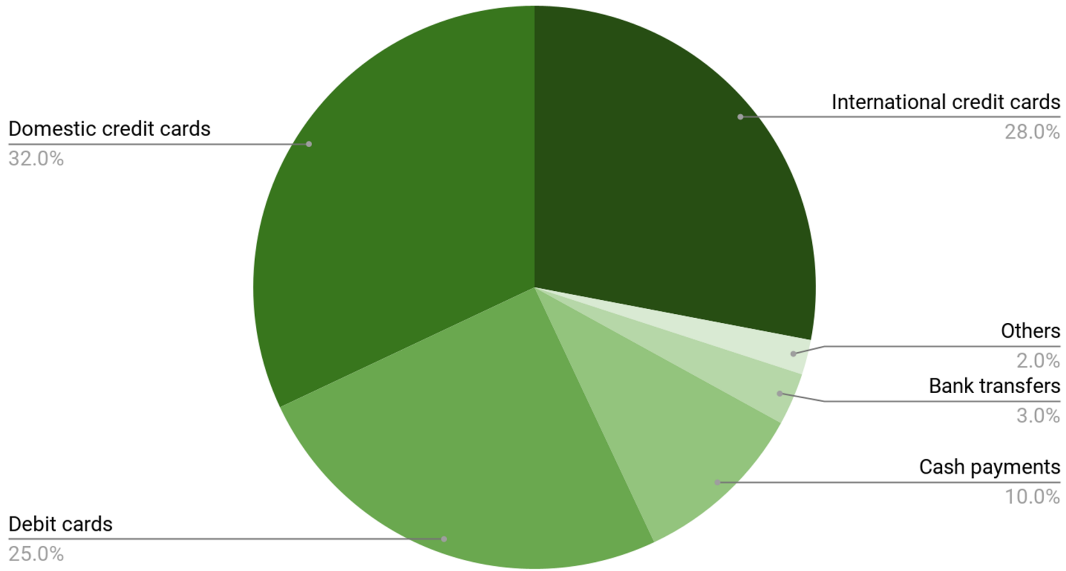
mastercard VISA AMERICAN EXPRESS mercado livre DISCOVER NETWORK JCB Aura Hipercard elo

PIX

pix

Chile

Ecommerce Payment Mix



Online Bank Transfers

webpay plus, Khipu

Cash

SERVIPAG

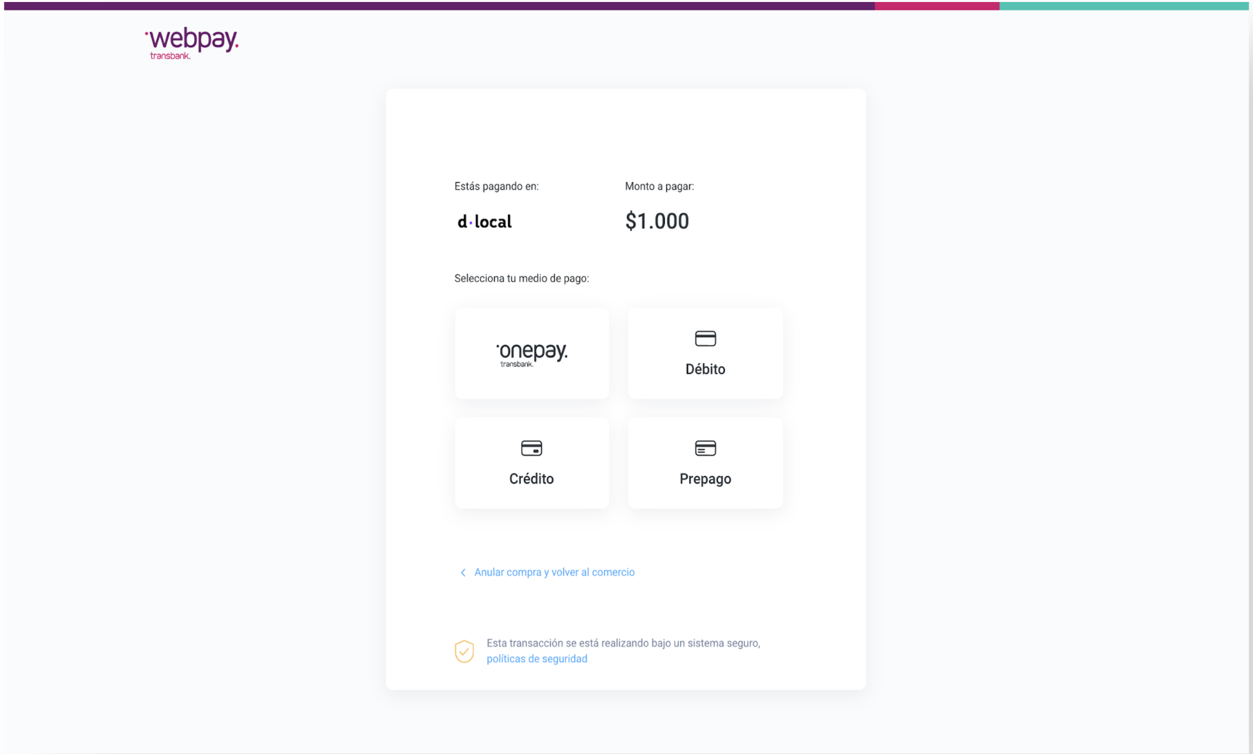
Local card payments

VISA, mastercard, American Express, Diners Club International, PRESTO, CMR Falabella, MAGNA, MACH

Chile: Webpay flow

1

By Choosing Webpay as a payment method, the user can pay with a **bank transfer** or a **Credit / Debit card**.



Estás pagando en:

d·local

Monto a pagar:

$1.000

Selecciona tu medio de pago:

‹ Anular compra y volver al comercio

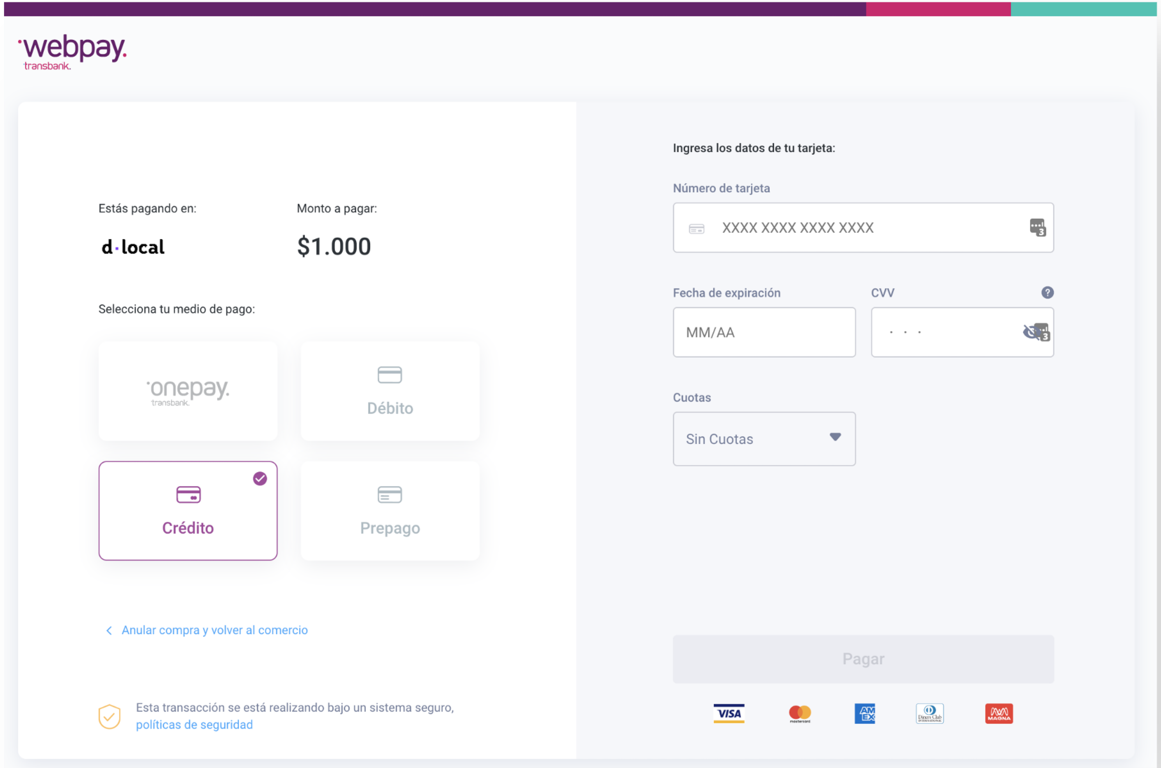
Esta transacción se está realizando bajo un sistema seguro, políticas de seguridad

Chile: Webpay flow

2

The user will input his card details in the same page.

If the payment is approved, the user will then see a 'Payment accepted' page.



webpay. transbank.

Estás pagando en: d·local

Monto a pagar: $1.000

Selecciona tu medio de pago:

‹ Anular compra y volver al comercio

Esta transacción se está realizando bajo un sistema seguro, políticas de seguridad

Ingresa los datos de tu tarjeta:

Número de tarjeta: XXXX XXXX XXXX XXXX

Fecha de expiración: MM/AA

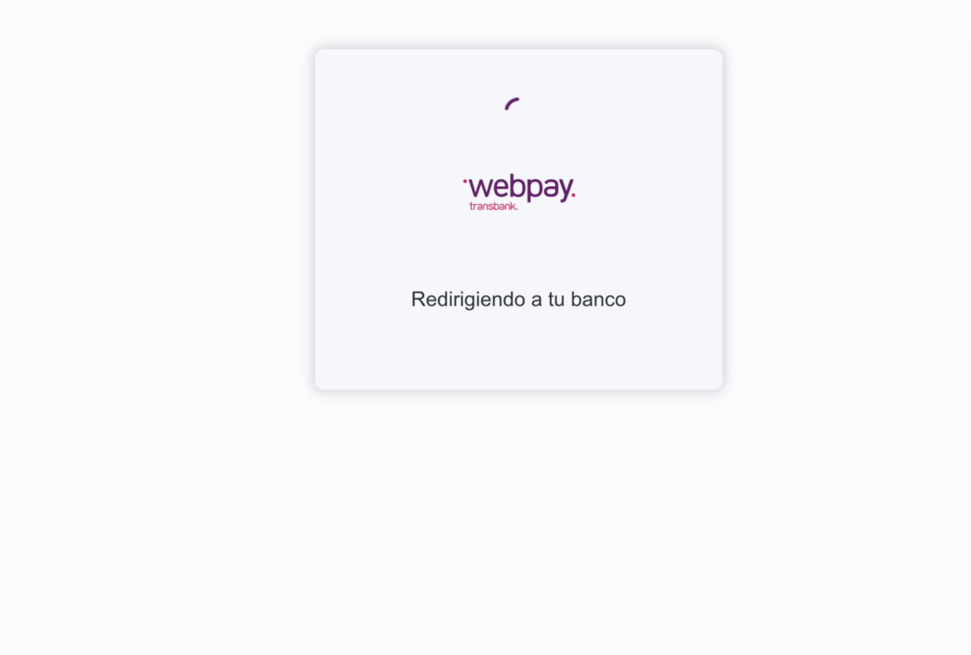
CVV: · · ·

Cuotas: Sin Cuotas

Chile: Webpay flow

3

The user will be redirected to the issuing bank in order to confirm the payment.

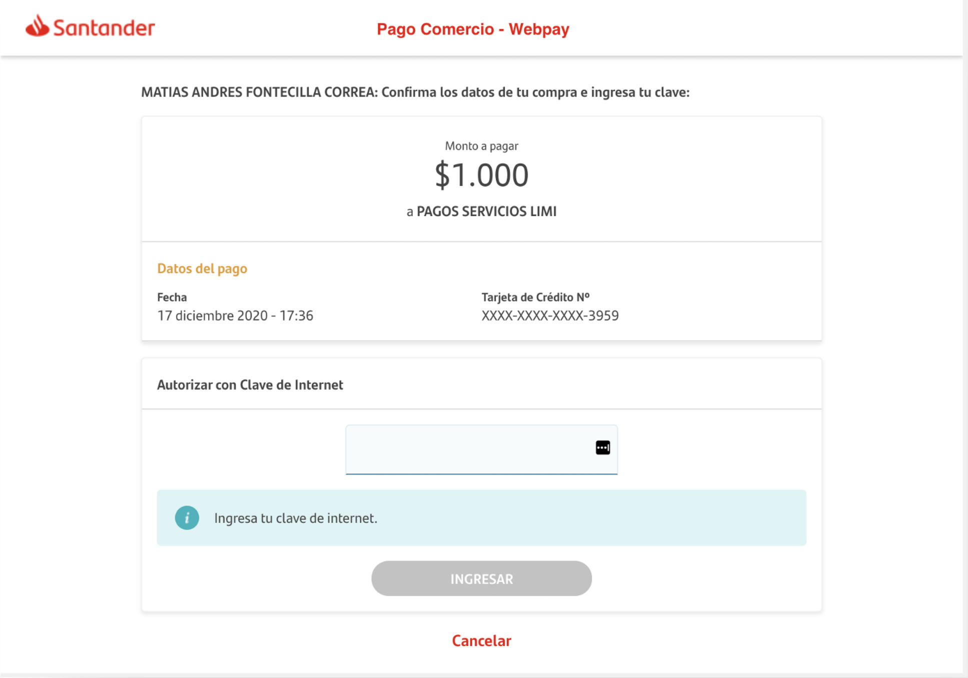


Redirigiendo a tu banco

Chile: Webpay flow

4

The user will enter the **personal key for online purchases** under 'Autorizar con Clave de Internet'



Santander

Pago Comercio - Webpay

MATIAS ANDRES FONTECILLA CORREA: Confirma los datos de tu compra e ingresa tu clave:

Monto a pagar

$1.000

a PAGOS SERVICIOS LIMI

Datos del pago

Fecha
17 diciembre 2020 - 17:36

Tarjeta de Crédito Nº
XXXX-XXXX-XXXX-3959

Autorizar con Clave de Internet

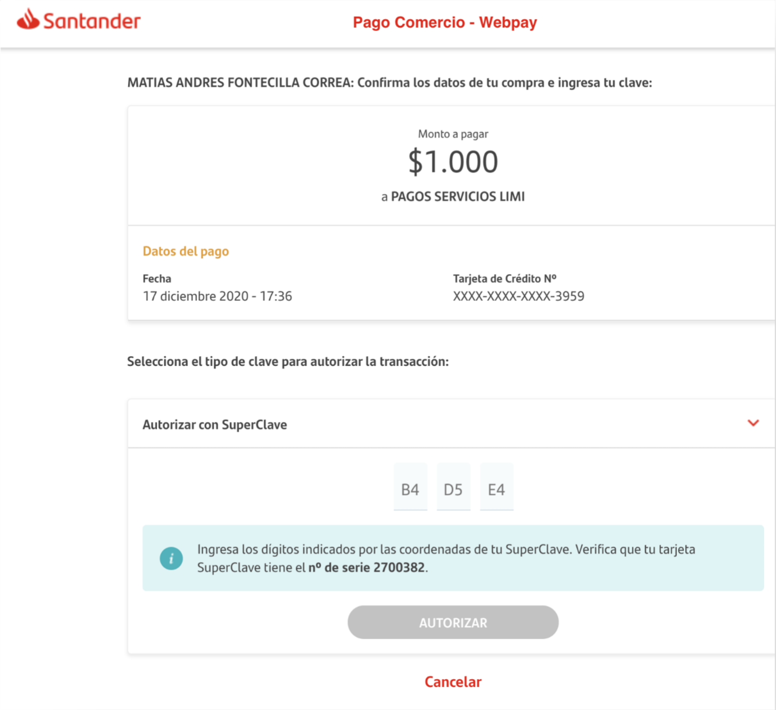
Ingresa tu clave de internet.

Chile: Webpay flow

5

The user will then confirm the payment and be notified the transaction was successful/rejected.

Additional authentication steps **may be required**, depending on the bank.



Pago Comercio - Webpay

MATIAS ANDRES FONTECILLA CORREA: Confirma los datos de tu compra e ingresa tu clave:

Monto a pagar

$1.000

a PAGOS SERVICIOS LIMI

Datos del pago

Fecha
17 diciembre 2020 - 17:36

Tarjeta de Crédito Nº
XXXX-XXXX-XXXX-3959

Selecciona el tipo de clave para autorizar la transacción:

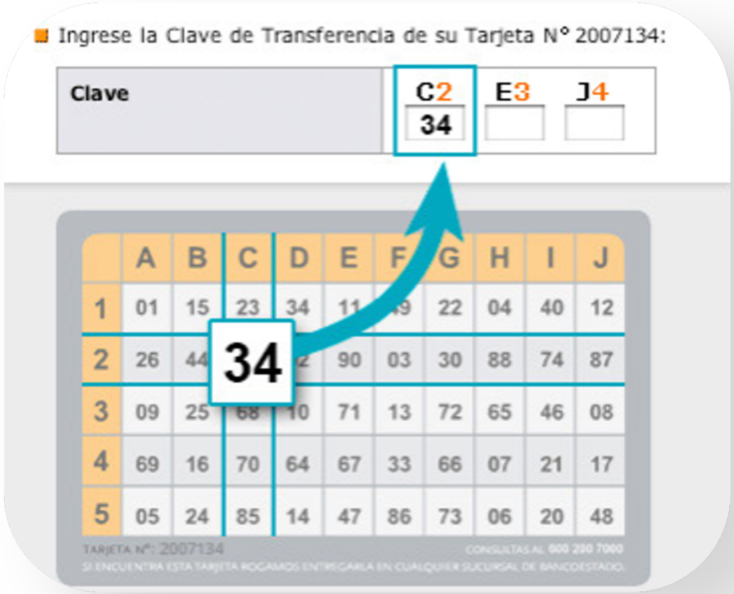
Autorizar con SuperClave

B4 D5 E4

Ingresa los dígitos indicados por las coordenadas de tu SuperClave. Verifica que tu tarjeta SuperClave tiene el **nº de serie 2700382**.

d.

Keypass/coordinates: Printed card authentication



Ingrese la Clave de Transferencia de su Tarjeta N° 2007134:

Clave	C2 34	E3	J4

	A	B	C	D	E	F	G	H	I	J
1	01	15	23	34	11	49	22	04	40	12
2	26	44	34	[illegible]	90	03	30	88	74	87
3	09	25	68	10	71	13	72	65	46	08
4	69	16	70	64	67	33	66	07	21	17
5	05	24	85	14	47	86	73	06	20	48

TARJETA N°: 2007134

CONSULTAS AL 600 200 7000

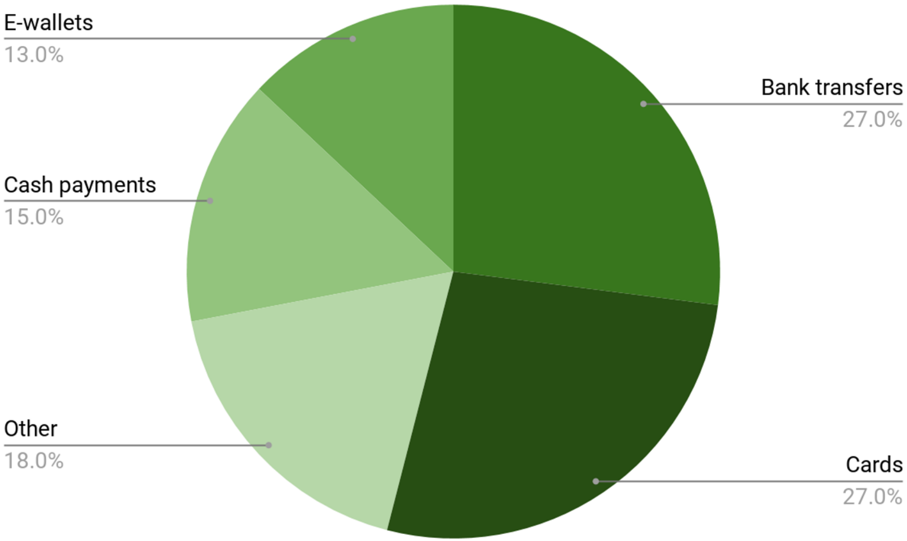
SI ENCUENTRA ESTA TARJETA ROGAMOS ENTREGARLA EN CUALQUIER SUCURSAL DE BANCOESTADO.

3D-Secure usage in APAC

Country	Details
India	● SCA mandated by the Reserve Bank of India on all online payment transactions ● Launch in 2014 caused a 25% overnight conversion drop ● 2020: 87% acceptance rate ● New mandates for recurring payments
Indonesia and Philippines	● 3DS is mandatory for Debit cards in PH ● Common practice is to require 3DS for all payments ● Enforced by most banks and acquirers ● Few names like Shopee, Grab, Gojek, and other big players can bypass 3Ds flow, with transactions below certain thresholds ● 3DS2.0 adoption is still at initial phase. Full roll out expected in 2022
Thailand	● Not mandatory, though most issuers offer 3D secure and is frequently used, esp. on high fraud / high ticket industries.
Malaysia	● Mandatory for debit cards, most issuers offer 3D secure. For some issuers, lack of authentication may imply lower authorization rates

Indonesia

eCommerce Payment Mix



Cash

Alfamart Alfamidi Indomaret DAN+DAN Fun Healthy Beauty LAWSON

Bank transfers

BCA BANK BRI mandiri BNI Maybank PermataBank PRIMA Link ALTO ATM Bersama

Local credit and debit cards

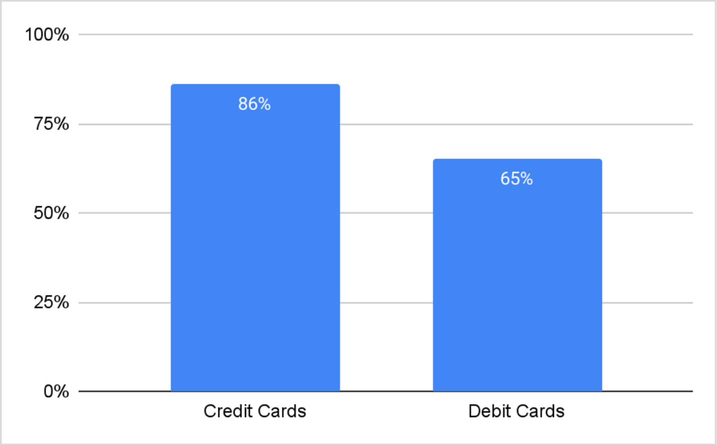
VISA mastercard JCB AMERICAN EXPRESS

E-Wallets

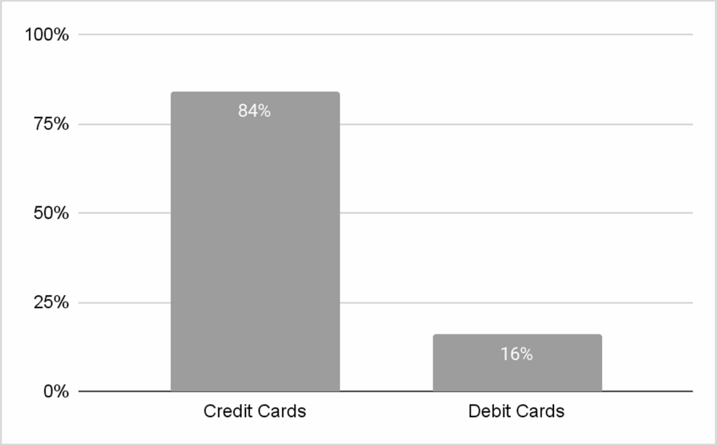
OVO LinkAja! GO PAY DANA

Case: Authorization rates in Indonesia

With 3DS



Without 3DS

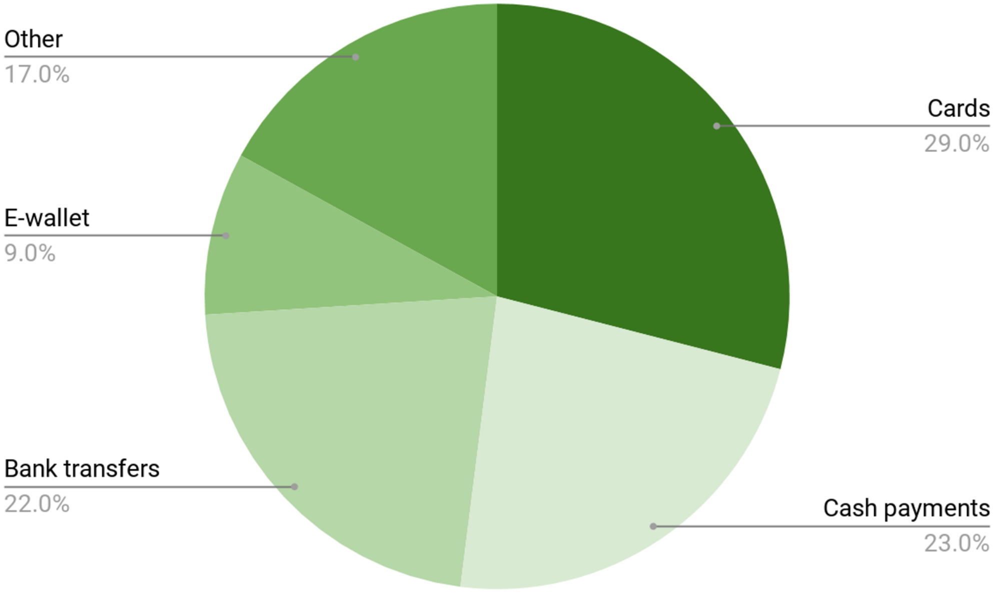


3D-Secure usage in MEA

Country	Status
South Africa	● 2FA required on all Credit card transactions since 2014, Payment Association of South Africa (PASA) ● Cardholders expect 3DS in transactions
Sub-saharan Africa	● 3DS is mandatory in most markets, with some exceptions (e.g. Kenya) ● Big merchants with low fraud rates and low average ticket values might get waivers, particularly for subscription flows. E.g. entertainment industry merchants

Nigeria

Ecommerce Payment Mix



Credit & Debit cards

VISA mastercard Verve

Bank transfers

access PROVIDUSBANK Sterling Bank FirstBank Since 1894 ZENITH unity bank GTBank paga your cash, anywhere, anytime Okra

Status:
Non-Card authentication approaches

Other non-card authentication approaches

Cash payments

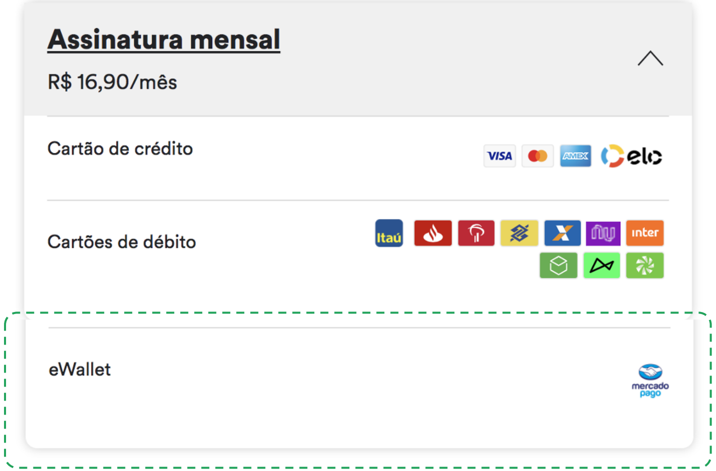
Bank transfers

eWallets

Mobile money

Local payment alternatives to cards / 3DS in emerging markets

eWallet: MercadoPago



Assinatura mensal

R$ 16,90/mês

Cartão de crédito

Cartões de débito

eWallet

1 User selects eWallet

2 User is redirected to MercadoPago App

eWallet: MercadoPago

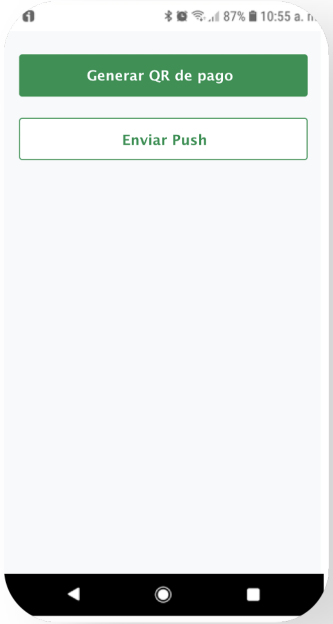
Authentication support:

- Face ID
- Touch ID
- Code

- Fingerprint
- Swipe pattern
- PIN

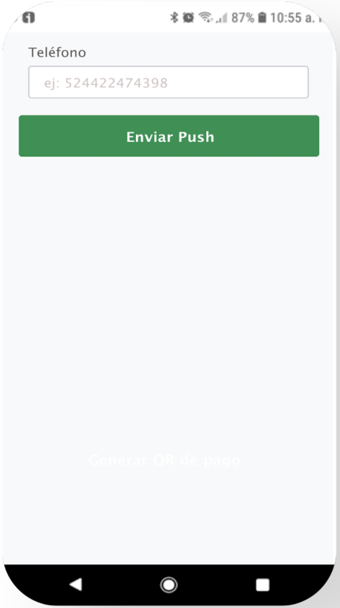
Bank Transfer: CODI

1



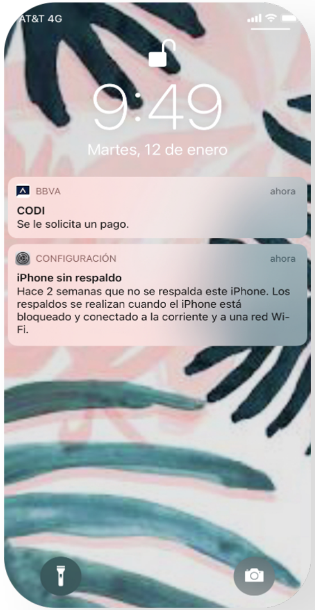
2 options to generate payment ticket: via QR or Push notification

2



Merchant sends a push notification to the payer's phone

3



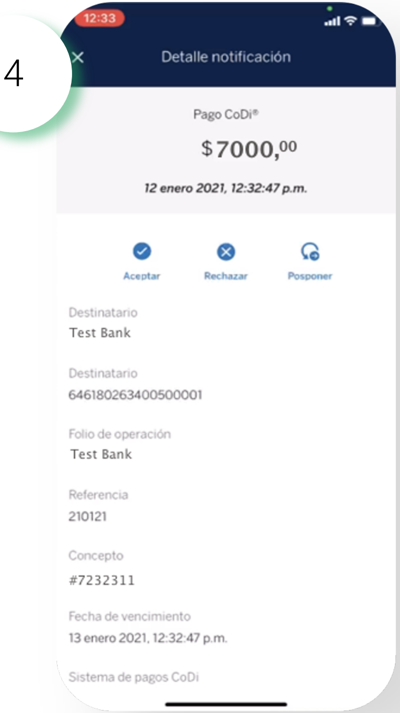
CODI
Se le solicita un pago.

iPhone sin respaldo
Hace 2 semanas que no se respalda este iPhone. Los respaldos se realizan cuando el iPhone está bloqueado y conectado a la corriente y a una red Wi-Fi.

The payer receives a push notification on their banking app and **logs in**

Bank Transfer: CODI

4



12:33

Detalle notificación

Pago CoDi®

$\$7000,^{00}$

12 enero 2021, 12:32:47 p.m.

Aceptar Rechazar Posponer

Destinatario
Test Bank

Destinatario
646180263400500001

Folio de operación
Test Bank

Referencia
210121

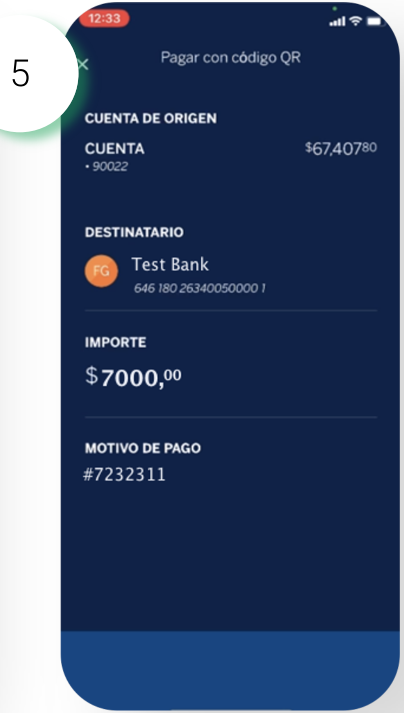
Concepto
#7232311

Fecha de vencimiento
13 enero 2021, 12:32:47 p.m.

Sistema de pagos CoDi

View transaction details

5



12:33

Pagar con código QR

CUENTA DE ORIGEN

CUENTA $\$67{,}407^{80}$
• 90022

DESTINATARIO

FG Test Bank
646 180 26340050000 1

IMPORTE

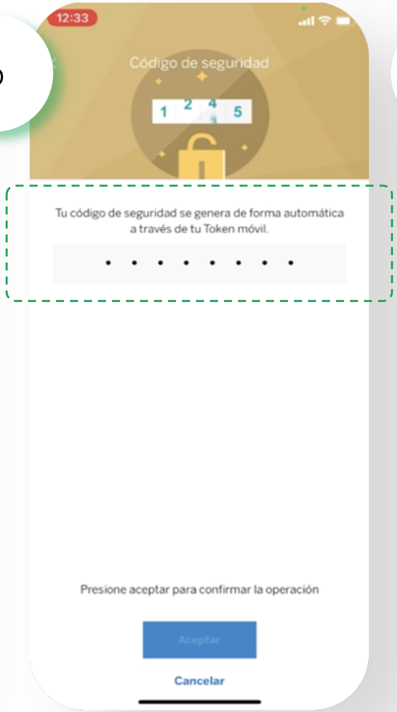
$\$7000,^{00}$

MOTIVO DE PAGO

#7232311

Accept payment

6



12:33

Código de seguridad

Tu código de seguridad se genera de forma automática a través de tu Token móvil.

• • • • • • • •

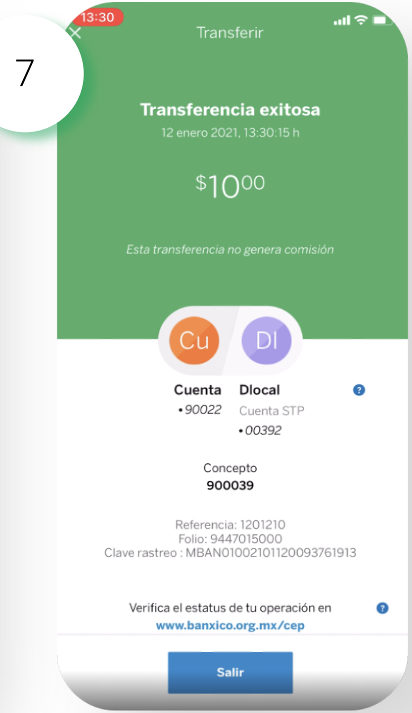
Presione aceptar para confirmar la operación

Aceptar

Cancelar

A **security code** is generated in the banking app

7



13:30

Transferir

Transferencia exitosa
12 enero 2021, 13:30:15 h

$\$10^{00}$

Esta transferencia no genera comisión

Cu DI

Cuenta *•90022*

Dlocal Cuenta STP *•00392*

Concepto
900039

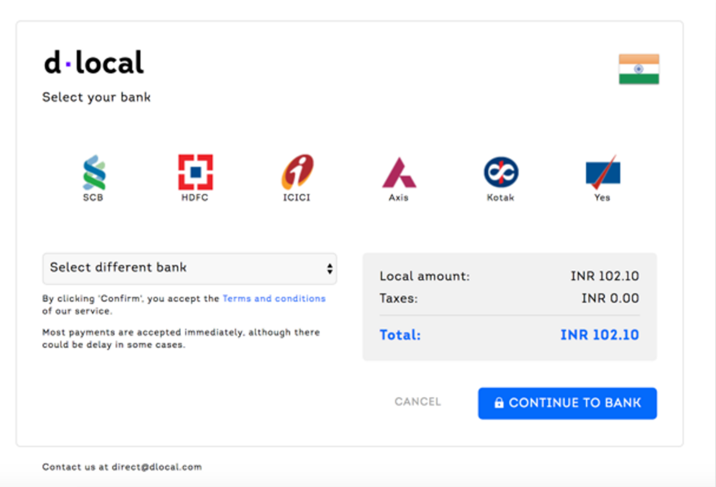
Referencia: 1201210
Folio: 9447015000
Clave rastreo : MBAN01002101120093761913

Verifica el estatus de tu operación en **www.banxico.org.mx/cep**

Salir

Transfer is successful

Bank Transfer: Netbanking India



d·local

Select your bank

Select different bank

By clicking 'Confirm', you accept the Terms and conditions of our service.

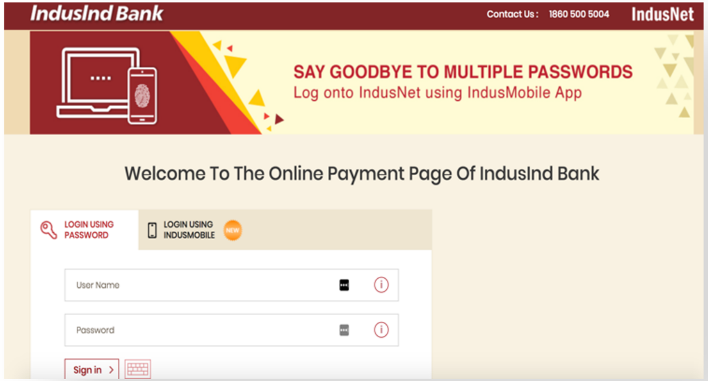
Most payments are accepted immediately, although there could be delay in some cases.

Local amount:	INR 102.10
Taxes:	INR 0.00
Total:	**INR 102.10**

Contact us at direct@dlocal.com

1

User selects bank, and is then redirected to their homebanking



IndusInd Bank
Contact Us : 1860 500 5004
IndusNet
SAY GOODBYE TO MULTIPLE PASSWORDS
Log onto IndusNet using IndusMobile App

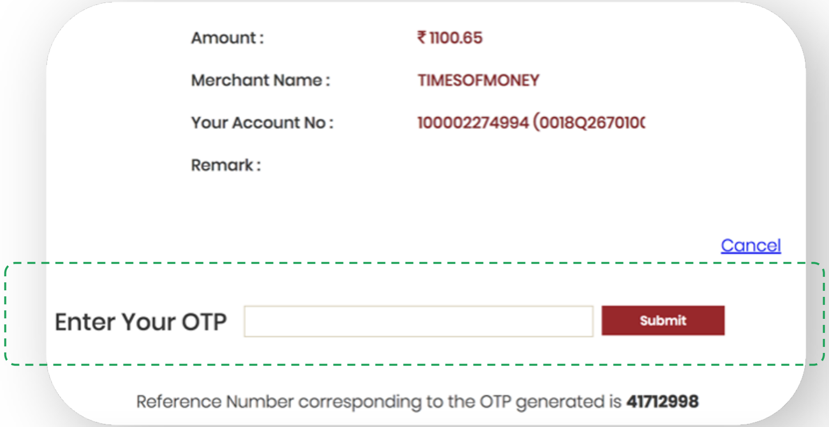
Welcome To The Online Payment Page Of IndusInd Bank

LOGIN USING PASSWORD
LOGIN USING INDUSMOBILE
NEW
User Name
Password
Sign in

2

User **logs in** to their homebanking

Bank Transfer: Netbanking India



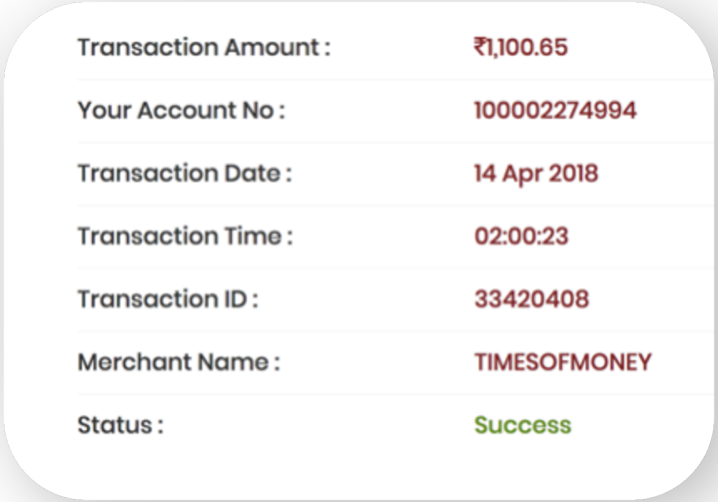
Amount :	₹ 1100.65
Merchant Name :	TIMESOFMONEY
Your Account No :	100002274994 (0018Q267010(
Remark :	

Enter Your OTP

Reference Number corresponding to the OTP generated is **41712998**

3

An OTP sent via SMS is requested

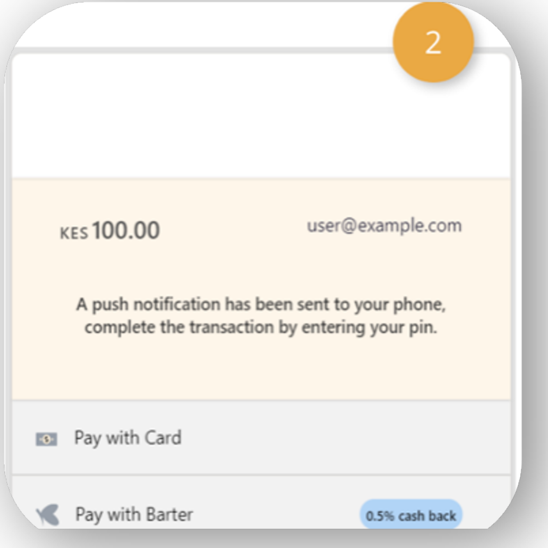


Transaction Amount :	₹1,100.65
Your Account No :	100002274994
Transaction Date :	14 Apr 2018
Transaction Time :	02:00:23
Transaction ID :	33420408
Merchant Name :	TIMESOFMONEY
Status :	Success

4

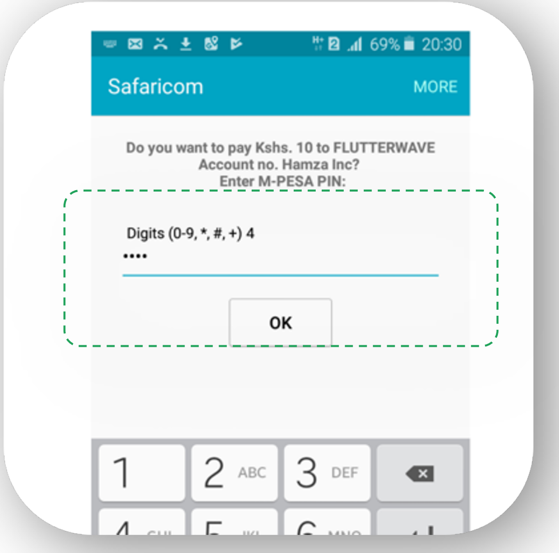
Payment is confirmed

Mobile money: Kenya / mPesa



KES 100.00 user@example.com

A push notification has been sent to your phone, complete the transaction by entering your pin.



Do you want to pay Kshs. 10 to FLUTTERWAVE Account no. Hamza Inc?
Enter M-PESA PIN:

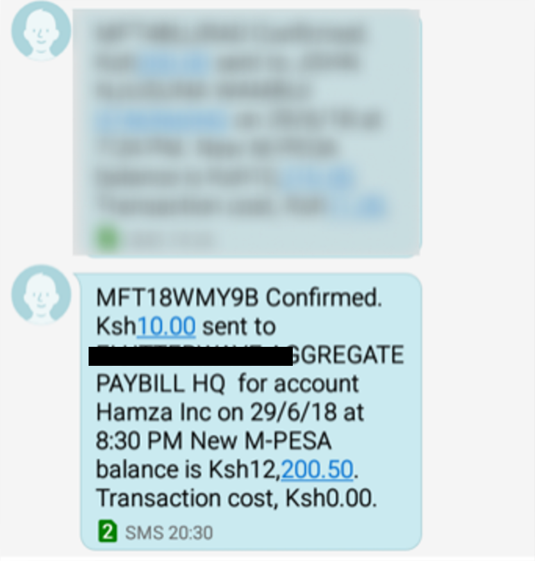
Digits (0-9, *, #, +) 4
••••

1 After user selects mPesa as payment method and provides a **phone number**, a push notification is sent

2 User is required to input mPesa **PIN**

mPesa: Mobile money authentication with PIN

3



[redacted]

MFT18WMY9B Confirmed. Ksh10.00 sent to [redacted]GGREGATE PAYBILL HQ for account Hamza Inc on 29/6/18 at 8:30 PM New M-PESA balance is Ksh12,200.50. Transaction cost, Ksh0.00.

2 SMS 20:30

User receives SMS with payment confirmation

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To 3DS or not to 3DS?

Is this required?

- ○ 3DS may be mandatory in some cases e.g. Debit.
- ○ processors/acquirers might require 3DS in certain markets (SEA, Africa)
- ○ Exemptions may be available for some merchants / types of payments.

Is this the right tool to reduce fraud?

- ○ Products or services offered & the fraud rates observed for the industry / country
- ○ Fraud prevention effectiveness

Evaluate technology & availability: 3DS 2 support status for issuers / acquirers / PSPs

Metrics for 3D-Secure 2

- Authentication Success
- Challenge rate
- Authentication abandonment
- Authorization performance
  - For both frictionless & challenge flows
- APM conversion recovery
- Consider App/Browser flows if applicable

3DS Implementation strategies

- Requestor environment integration options:
  - Use an external 3DS provider, or
  - Integrate the Acquirers’ / PSP solutions
- Use supported features where available: Data only, exemptions, 3DS per txn
- Use fallback strategies where possible, to 3DS1 or no-3DS

3DS Implementation strategies

Alternative payment methods

Make it easy for your customers to pay in different ways:

- Cash payments
- Bank transfers
- eWallets
- Mobile money

Communicate to your customers about 3D-Secure

Alternative to 3DS: Active fraud prevention

- Some popular fraud prevention technologies such as AVS do not apply in Emerging Markets.
- Option: Integrate a fraud prevention solution
  - ML & Rules-based
  - Data is key
  - Ongoing merchant & local expert collaboration

Thank you!

Questions?

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