



# Innovation and Demystifying International Interchange

Ariel Setton, Ingenico ePayments  
Head of Global Pricing Performance & Optimization  
San Francisco, August 6, 2019

# Ariel Setton



## Ingenico ePayments | Shaping the Future of Payments

5 yrs 9 mos

### Head of Global Pricing Performance & Optimization

Jul 2018 – Present · 1 yr 2 mos

Buenos Aires, Argentina

### Global Pricing Intelligence & LATAM Deal Pricing Manager

Jan 2016 – Jun 2018 · 2 yrs 6 mos

Buenos Aires, Argentina

### LATAM Deal Pricing Manager

Dec 2013 – Dec 2015 · 2 yrs 1 mo

Buenos Aires, Argentina



### Head of Strategic Planning

Codamation

Aug 2010 – Dec 2013 · 3 yrs 5 mos

Buenos Aires, Argentina



### Commercial Planning Lead

First Data Corporation

Oct 2007 – Aug 2010 · 2 yrs 11 mos

Buenos Aires, Argentina



Head of Global Pricing  
Performance & Optimization,  
Ingenico ePayments

# Ingenico Group

Two Business Units



**Banks & Acquirers**  
Converging business and payment

**30M**  
TERMINALS WORLDWIDE

**1,000+**  
ACQUIRERS



**Ingenico ePayments**  
Offering merchants of all sizes solutions to accompany their growth

**+5bn**  
TRANSACTIONS VOLUME

**300,000+**  
MERCHANTS

# Agenda

1. Interchange and Scheme Fees across the globe
2. Scheme Fee trends
3. Data Science and Analytics to Improve results

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# Interchange: what is it?



Covers the cost to issuing banks for offering lines of credit and fraud mitigation.



Non negotiable



Determined by the payment brands, collected by an acquirer and forwarded to the card issuing bank via the payment brands



Charged on every credit, debit and prepaid transaction



The rate a merchant pays for a transaction is dependent on multiple variables

# Interchange: what determines it?

## Interchange is determined by:

- Geography
- Average Transaction Value (ATV)
- Credit/Debit/Prepaid
- MCC/Vertical
- Commercial/Consumer/Premium
- Standard vs. Secure Transactions
- Regulation



**Not negotiable, but  
manageable**

## Possible disruptions in future:

- Brexit
- PSD2 and other payment system regulations
- European Commission investigation into interregional fees<sup>1</sup>
- Special interchange programs (i.e. MasterCard Global Wholesale Travel<sup>2</sup> program)
- Alternative payment systems<sup>3</sup> that leverage card rails (i.e. Alipay, Apple Pay, Amazon)

<sup>1</sup> Source: [http://europa.eu/rapid/press-release\\_MEX-17-2341\\_en.htm](http://europa.eu/rapid/press-release_MEX-17-2341_en.htm)

<sup>2</sup> Source: <https://www.mastercard.com/global/global-wholesale-travel-transaction-interchange.html>

<sup>3</sup> Source: <http://www.ezodproxy.com/mastercard/2018/ar/images/Mastercard-AR2017.pdf>

# Scheme fees: what are they?



Determined by the payment brands and paid by the issuer and acquirer



Structure defined by the merchant country



Most significant fees:  
Assessment fees; Clearing & Settlement; Cross Border fees



Lots of new fees



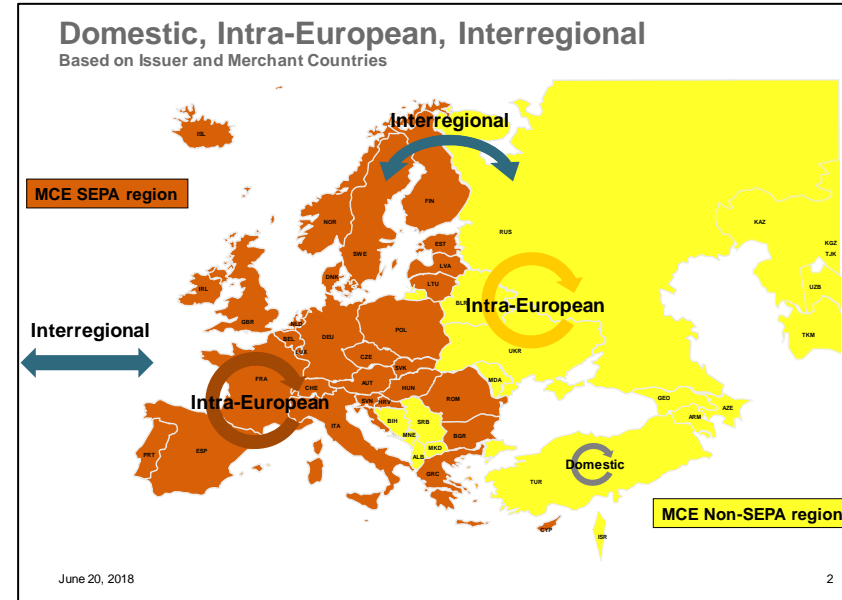
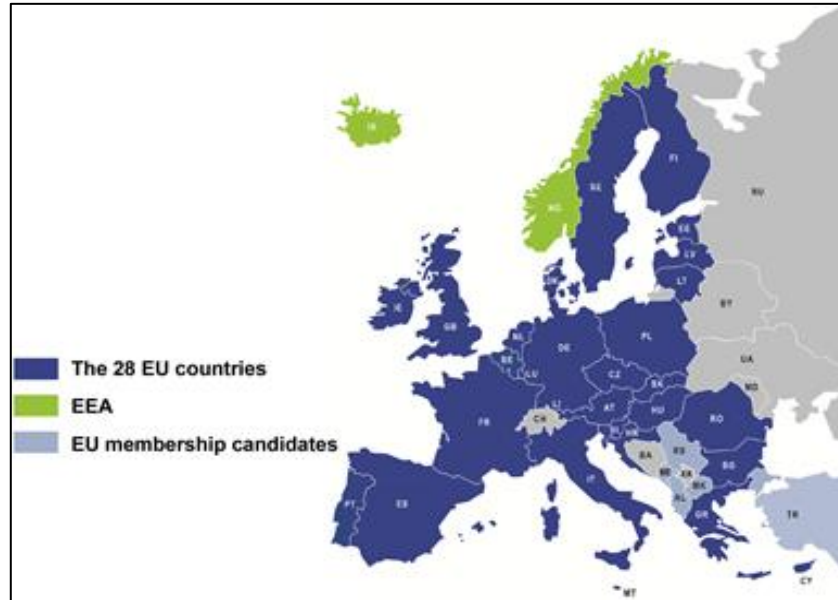
# Interchange and Scheme Fees

Europe



# Interchange fees in Europe

Europe “regions”: Europe, European Union, EEA, Non EEA



Interchange rates are set per country, and differ for Visa and MasterCard

Cross-border is where the issuer country  $\neq$  merchant country (entity boarded).

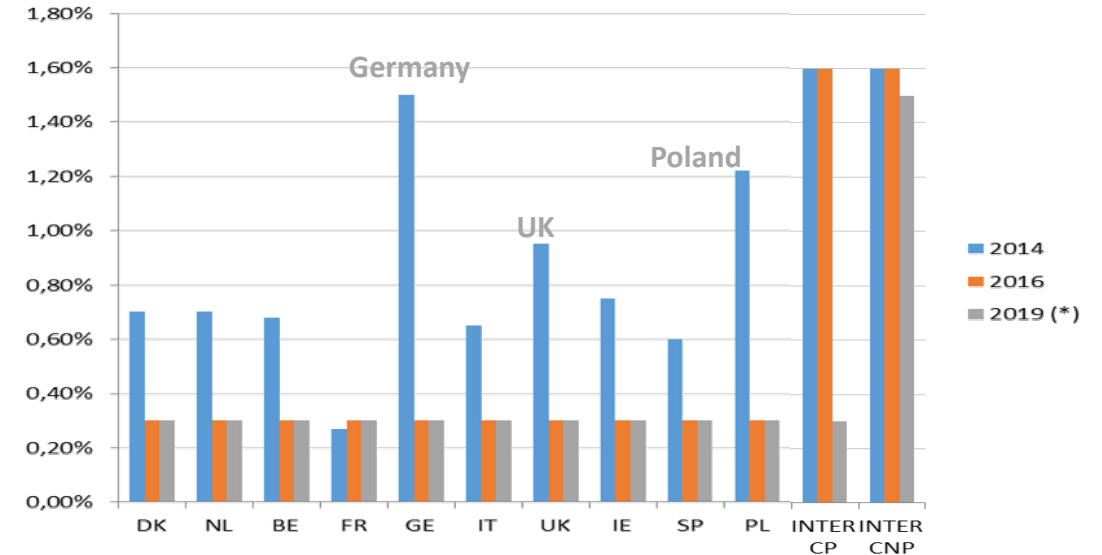
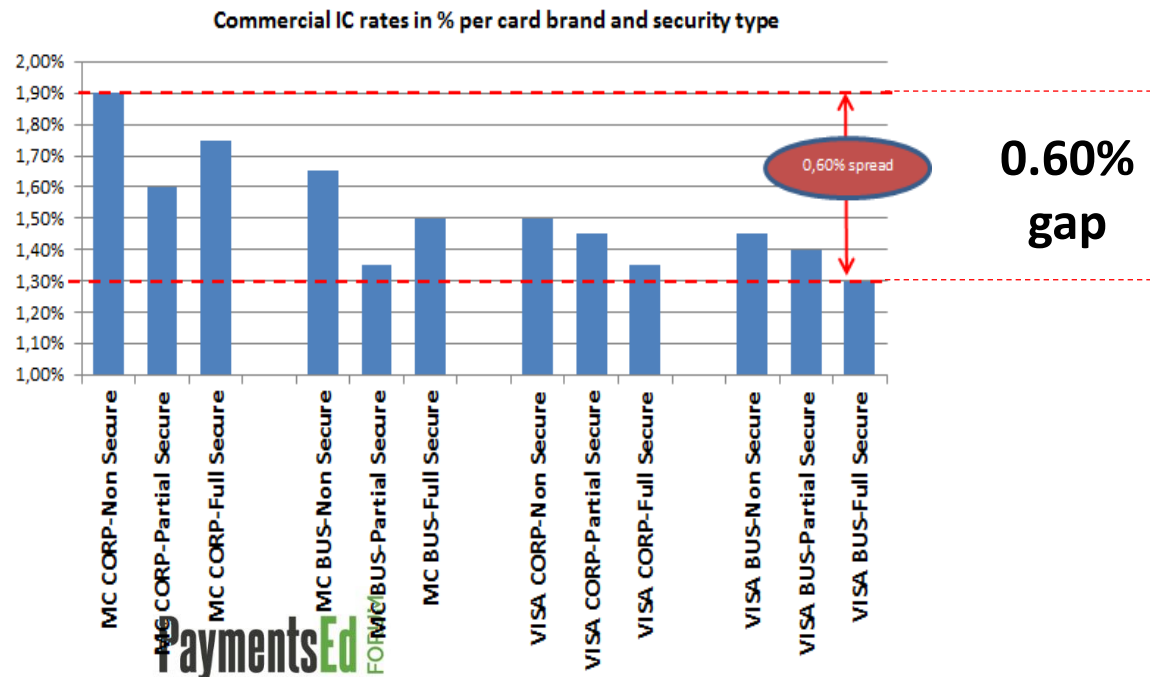
Acquirer country not (yet) relevant<sup>1</sup>.

# Interchange regulations in Europe

## Multilateral Interchange Fee Regulation (MIF)

Domestic and cross-border interchange rates capped at 0.30% for consumer credit and 0.20% for consumer debit

Interchange revenue dropped by 50-80%  
Germany, Poland, UK impacted the most



## Commercial cards not yet regulated:

Gap between consumer and commercial cards increase

New programs launched (i.e. Mastercard Global Wholesale program, Visa B2B program) with interchange of up to 2.00%

# Scheme fees in Europe: Visa

**Most important fees, currently the same for all Visa Europe countries (*until 2020*)**

## **Assessment fees**

- Differs for credit and debit

## **Clearing & Settlement fees**

- Differs per regionality

## **Cross-border fees**

- Increased in Oct 2014 by 0.15% (from 0.25% to 0.40%)
- Increased in Jan 2017 by 0.15% (from 0.40% to 0.55%)
- Increased in Apr 2018 by 0.15% (from 0.55% to 0.70%)
- Increased in Apr 2019 by 0.15% (from 0.70% to 0.85%)
- Future increase in Apr 2020 by 0.15% (from 0.85% to 1.00%)



**x4**  
**From 0.25% to 1.00%**

# Scheme fees in Europe: Mastercard

**Most important fees, different per merchant country (on average higher than Visa):**

## **Assessment fee**

- Differs per credit and debit
- Differs per merchant country

## **Clearing & Settlement fees**

- Differs per region
- Differs per merchant country

## **Cross Border fees**

- Differs per currency
- Differs per merchant country

## **Lots of new fees:**

- Creation of new Innovation Funds and Market Development funds in various countries
- Part of interchange “compensation” for issuers
- Schemes take over role from issuer, merchants pay for it

### **Boarding entity important**

**Interchange and scheme fees are determined by merchant country and country issuer (and in certain cases, also currency or acquirer country)**

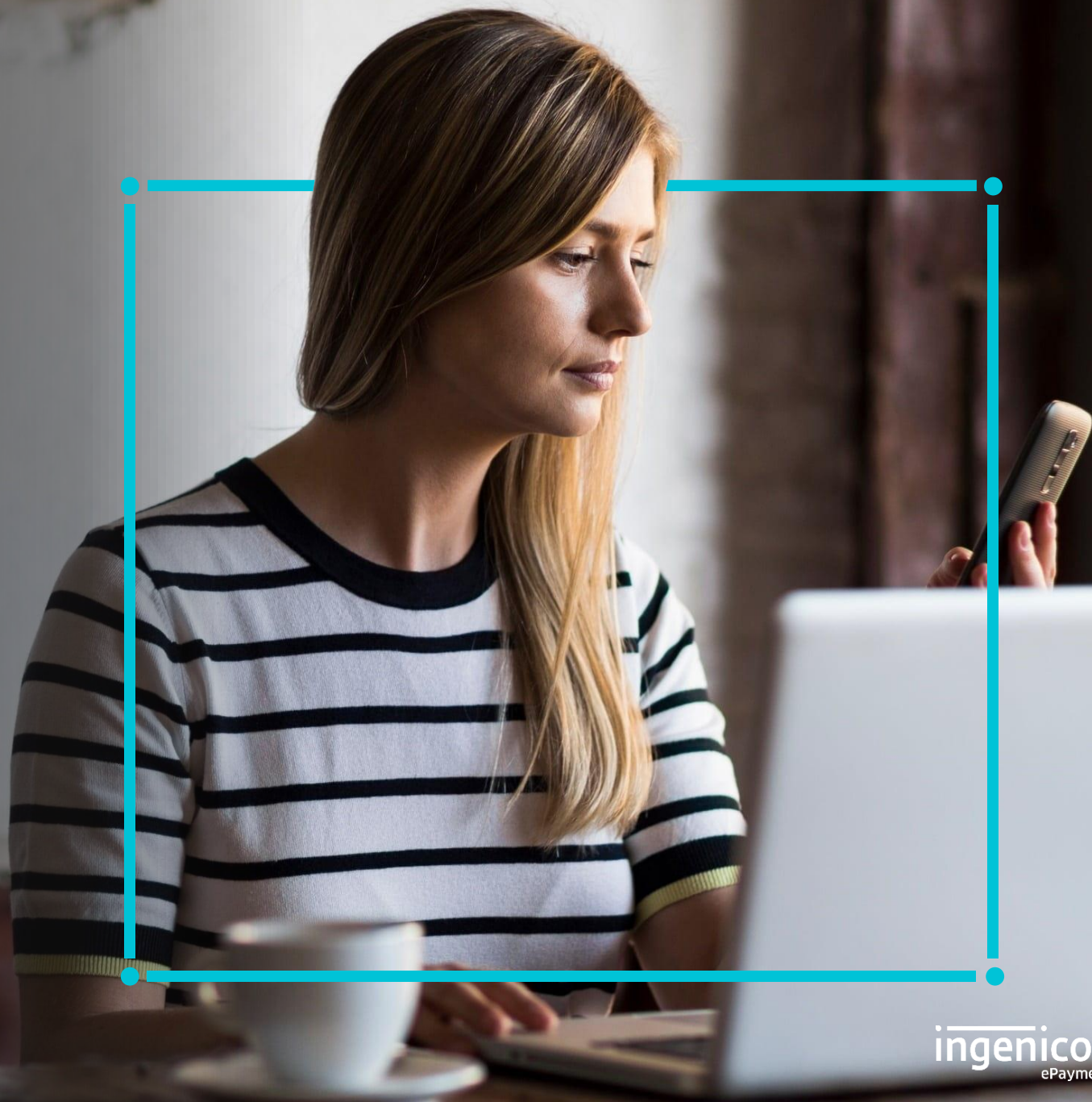
*\* Mastercard, card issuer Netherlands, ATV 100 EUR, non secure*

<b>Merchant country</b>	<b>Interchange</b>	<b>Scheme fees</b>	<b>Total*</b>
Switzerland	1.14%	0.19%	1.33%
United Kingdom	0.30%	0.08%	0.38%
Romania	0.30%	0.51%	0.81%
Hungary	0.30%	0.48%	0.78%



# Interchange and Scheme Fees

United States



# Interchange fee qualifications and downgrades in the US

## Terms



Electronic Interchange  
Reimbursement Fee.  
Downgraded rate. Visa  
only



Worst  
possible rate



Downgraded  
rate. Multiple  
levels of  
downgrade



Best possible  
interchange  
rate

## Causes for Downgrade



Delays in  
settlement



Mismatch  
between  
authorized sale  
and settled  
amount



No address  
verification  
(US, Canada  
and UK only)



Doesn't  
match



Lack of data  
submission for a  
commercial card



Merchant set up  
under incorrect  
MCC Code

# Interchange fees in the US



## Regulation

Durbin amendment on debit cards (.05%+22c/tx)

## AVS

Can reduce Visa IC.  
No impact on Mastercard.

## Domestic

IC qualification on CPS, EIRF, Standard

## Card type

Commercial/Consumer/Prep aid/Premium

## Settlement Time

Affects IC qualification

## Managing interchange

Produces more savings than negotiating acquirer rates



# Interchange and Scheme Fees

Asia Pacific



# Interchange fees in Asia Pacific



Significant IC rates  
difference per country

Many regulated countries:  
i.e. Malaysia 0.675% vs  
Indonesia 1.95%

High amount of  
premium cards

Higher IC average rates,  
i.e. MC Intra APAC: 1.25%  
standard vs. 2.02% premium

Different IC rates per  
vertical

Make sure you qualify for  
correct vertical

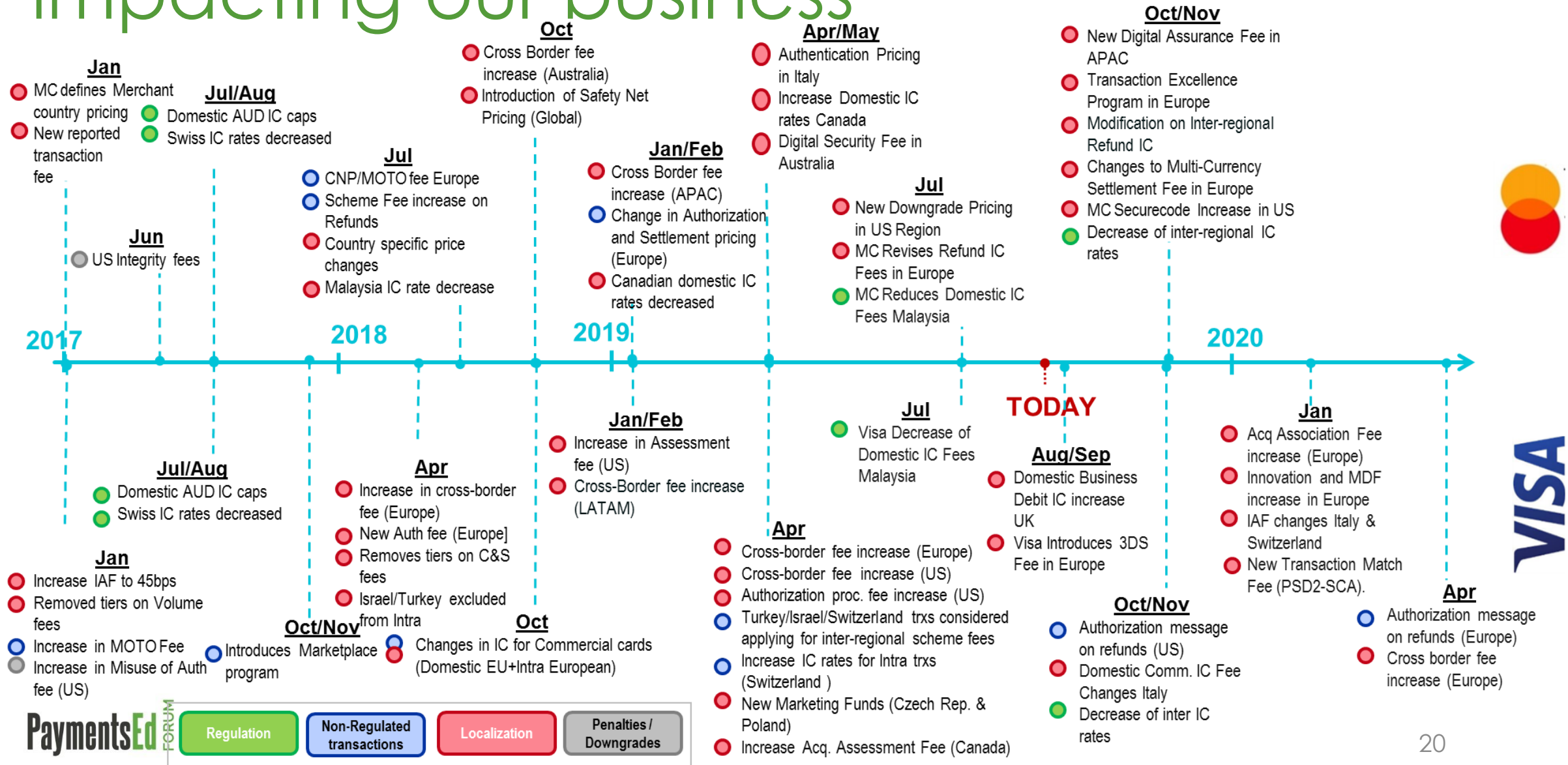
Scheme fees depend  
both on currency and  
regionality

They can be as high as  
1.50%

# Agenda

1. Interchange and Scheme Fees across the globe
2. Scheme Fee trends
3. Data Science and Analytics to Improve results

# Continuous market changes impacting our business



# Interchange and Scheme Fee trends in Europe

After the MIF regulation (Dec-15), both Visa and MC have increased SFs by raising existing fees and introducing new ones.

## New Scheme Fees introduced

- Visa & Mastercard authorization fee
- MC Reported Transaction Fee
- Marketing Funds
- SecureCode Fee
- Card-Not-Present fees
- Merchant country pricing

## Changes on existing fees

- Commercial Cards
- Refunds
- Cross Border transactions
- Switzerland/Israel/Turkey regionality qualification

- Compliance and “Processing Integrity” has become an intrinsic part of transaction processing.
- Domestic processing and merchant country selection become more relevant for our merchants to optimize their costs.

- The Visa Merchant Location Rule and Processing Integrity Fees underline this.

# Interchange and Scheme fee trends in the US and Asia Pacific

## UNITED STATES

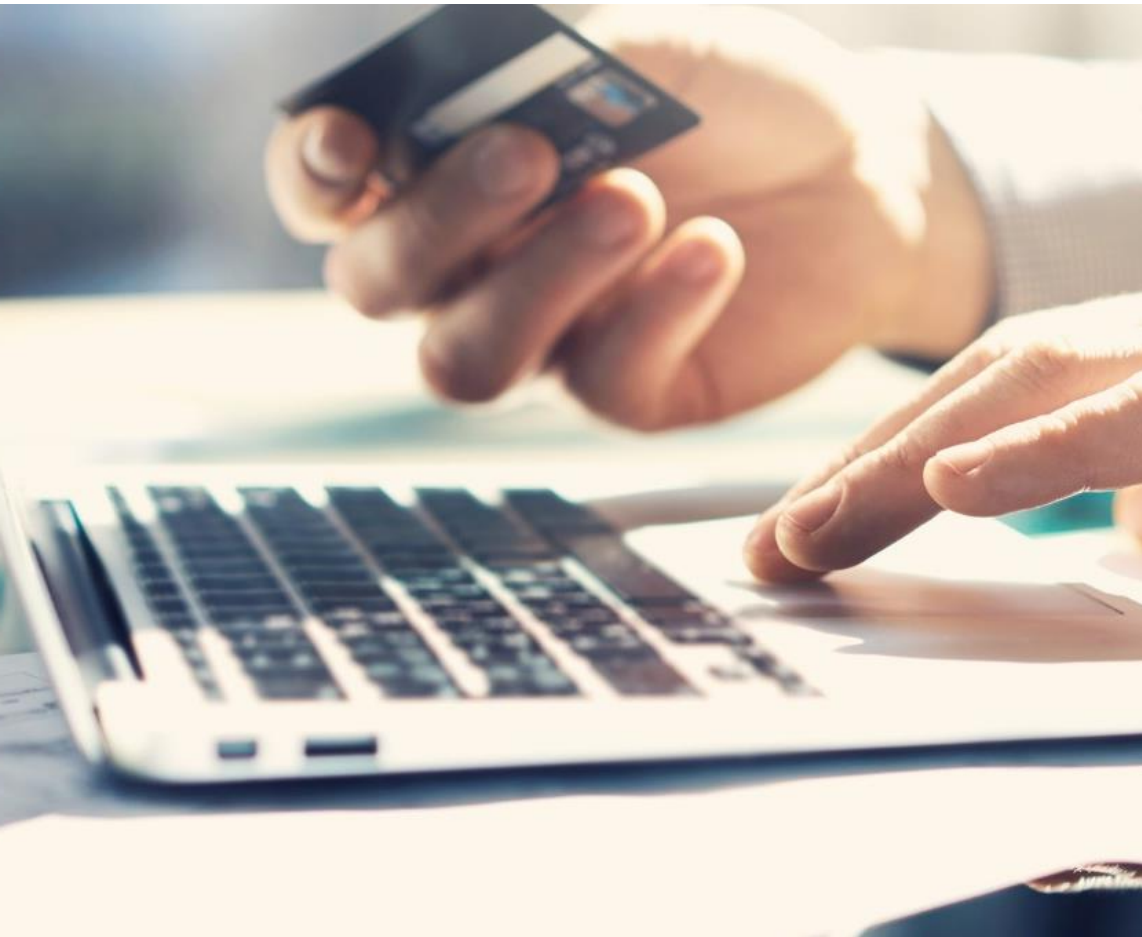
- Interchange and scheme fees have increased consistently. Cross-border fees are set at levels above 150 bps up to more than 200 bps
- ICF are expensive on both consumer and commercial cards.
- Complexity on domestic ICF. Compliance becomes an intrinsic part of ICF allocation (i.e. MC Downgrade Pricing) and SF costs (i.e. Excessive Authorization attempts, Safety Net).
- Attracting the most beneficial effort requires a strong understanding of data requirements (i.e. Visa CPS, MC Level I-III data) and merchant effort.

## APAC

- Scheme fees show an increase in the past years, most notably for cross-border transactions.
- Interchange fees in APAC are significant, while fee caps have been introduced in Malaysia (2015, 2018, 2019) and Australia (2017).
- High share of premium cards driving high costs on interchange fees in particular.



# Interchange and Scheme fees – General trends



## Manageable fees

Interchange and Scheme Fees are not negotiable, but it may be possible to manage them

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## Tendency to complexity

Interchange and scheme fees continue to increase. Fees will continue to become more complex

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## Change in fees acceleration

In Europe, fees have accelerated after the MIF/IFR regulation and Visa Inc./Visa Europe acquisition

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## Regulation

Regulation will continue to play a role in shaping how the schemes price

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# Transaction economics: why we do it



**Forever growing datasets and increased regulation imply growing complexity**



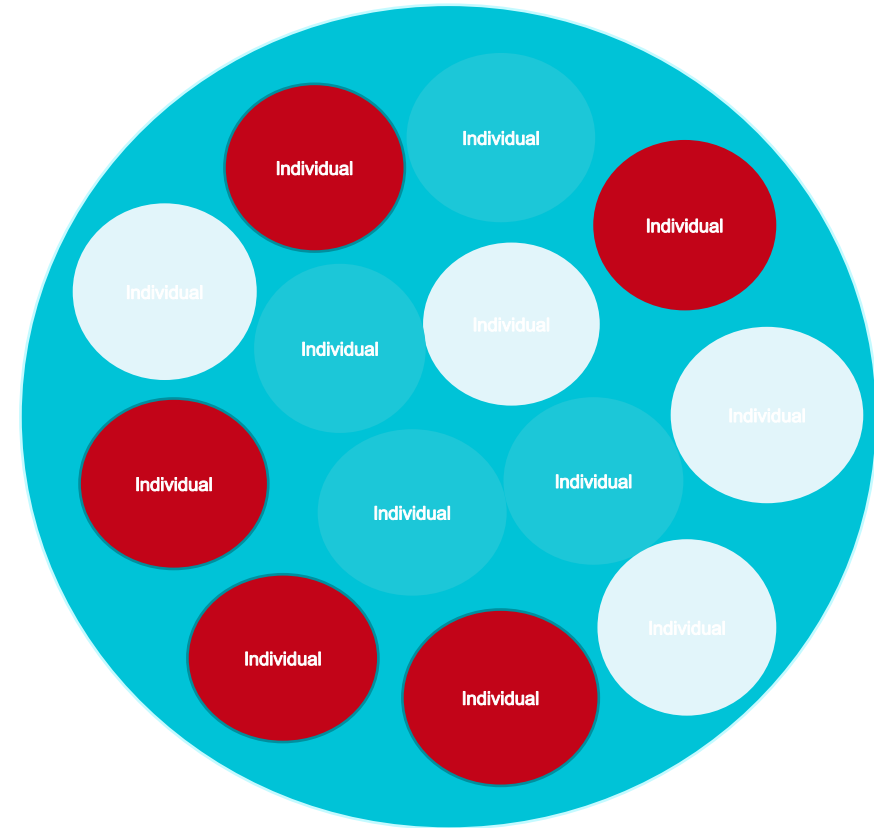
**How to manage outcomes and unrefined environments**



**Change in scope of traditional analyst.  
Limits of traditional tools and methods.**

# Our approach on Data Science and Analytics

- Using data to understand merchant behavior as a whole as well as targeting individual merchants
- Going beyond monitoring and visualizing information
- Showing merchants how elements of their data footprint can be modeled to make real contributions
- Developing pattern recognizing models (random forest classifiers and logistic regression) that can assess how different variables interact with one another



# Transaction Economics: what we do



Big data



Descriptive and  
Predictive  
models

**1** Authorization rate improvement

**2** Cost optimization



# Transaction Economics: Acceptance rate improvement

- 1 Tailored dashboards for tailored solutions

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- 2 Consultant involvement into merchant needs

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- 3 Proactive opportunity seeking to maintain and improve conversion rates



# Transaction economics: Improving acceptance rate

## Going beyond monitoring and visualizing information

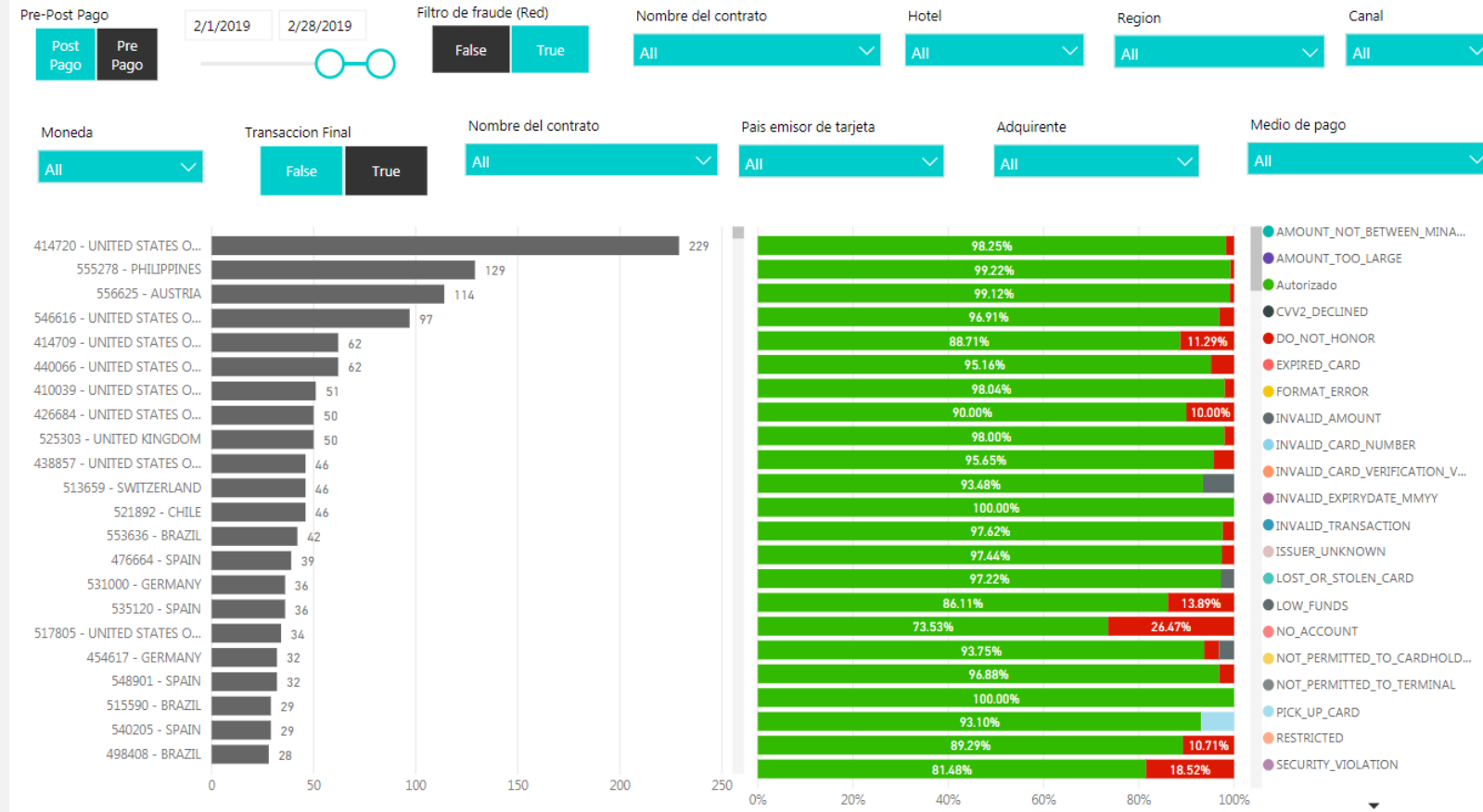
Illustrative Example  
only



# Transaction economics: Improving acceptance rate

## Going beyond monitoring and visualizing information

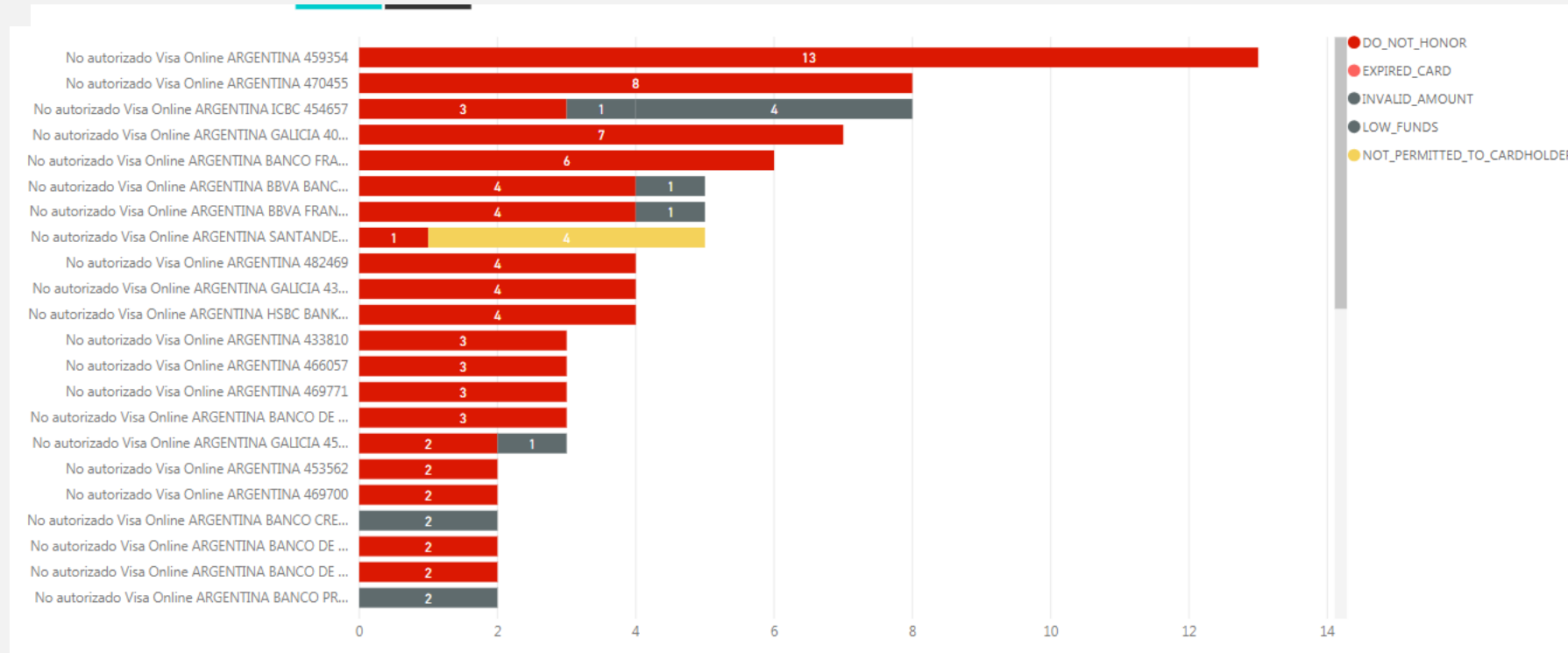
Illustrative Example  
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# Transaction economics: Improving acceptance rate

## Going beyond monitoring and visualizing information

Illustrative Example  
only



# Cost Optimization

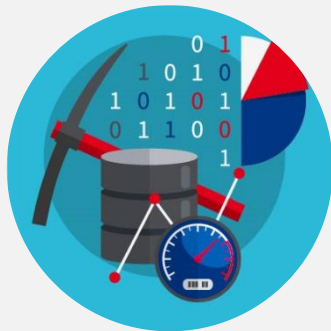


# Transaction Economics: Cost optimization

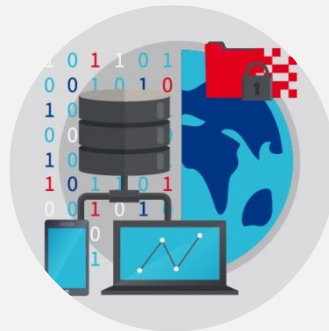
Using a dataset where costs and interchange descriptions are tied to backend transactional data with AVS messages, the patterns from different variable combinations can predict interchange behavior.

If interchange behavior can be predicted then “causal relationships” can be validated.

## DATA MINING



## DATA SCIENCE

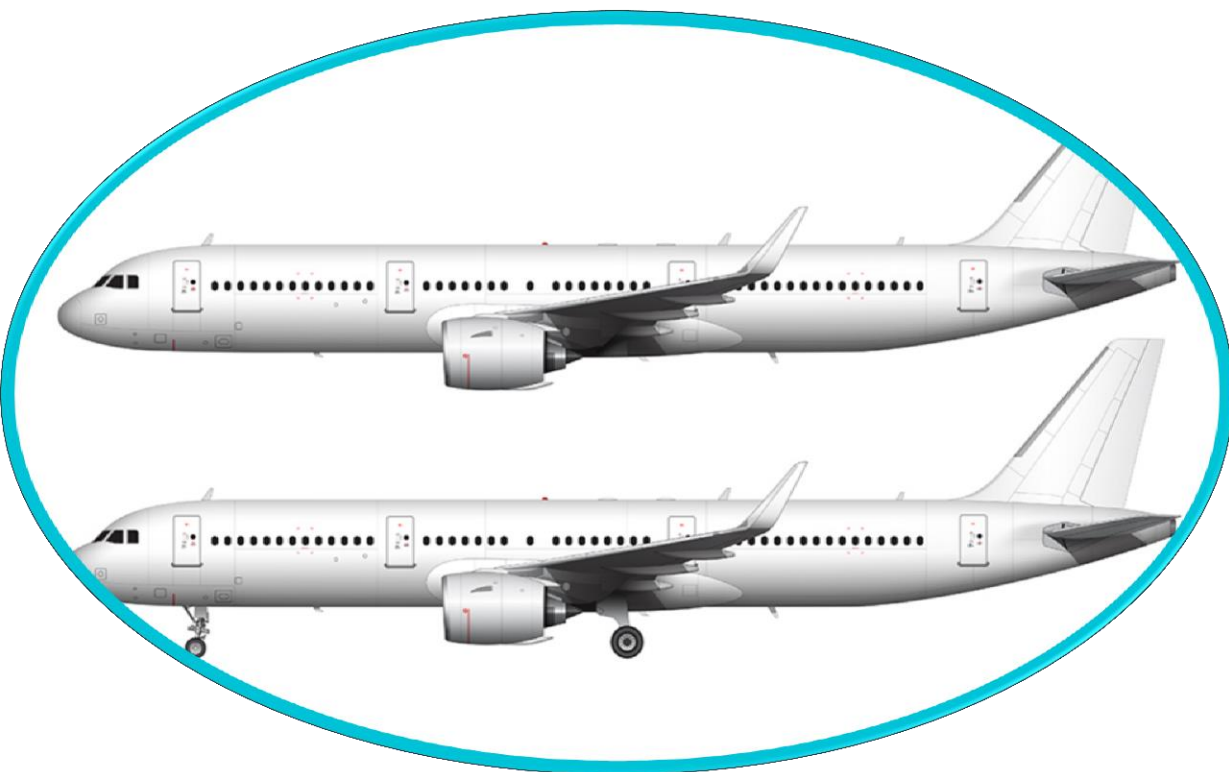


## DECISION FOREST



# Transaction Economics: Cost Optimization case studies

LATIN AMERICAN AIRLINE



ASIAN ONLINE TRAVEL AGENCY

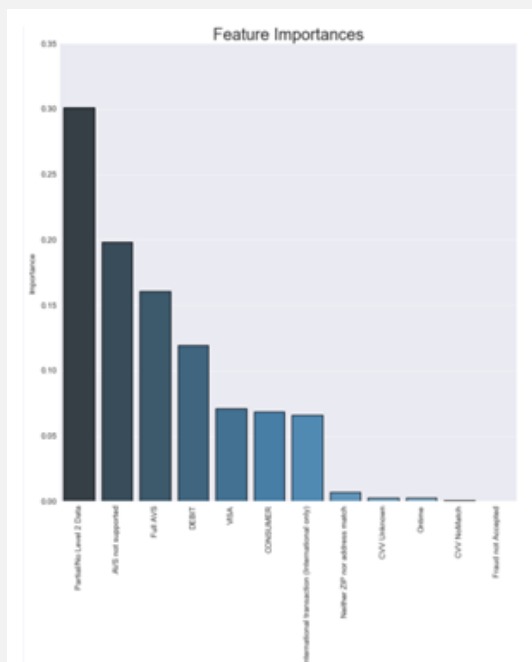


# Data Science as a tool for reducing cost of acceptance

Illustrative Example only

Our random forest classifier model shows **casual relationships not just correlation**

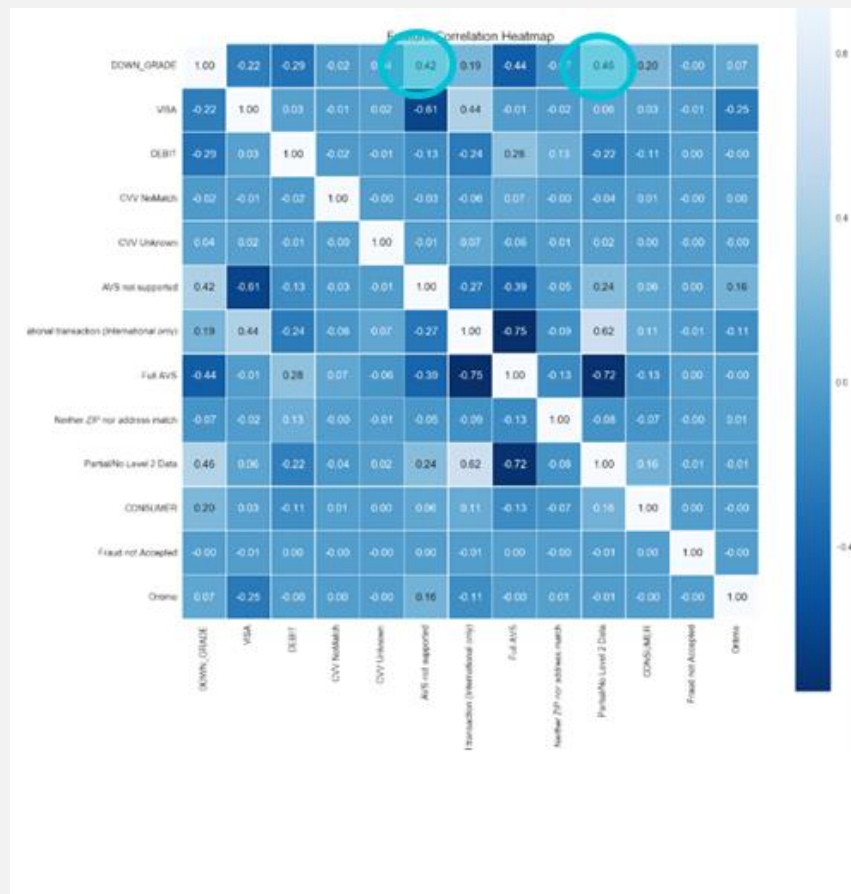
Recall Classification report measures the effectiveness of the models pattern recognition for “true positives” is .89



Precision/Recall Classification Report

```
In [102]: print classification_report(testY, gs.predict(testX), )
```

	precision	recall	f1-score	support
0	0.95	0.95	0.95	484
1	0.88	0.89	0.89	207
avg / total	0.93	0.93	0.93	691



Downgrades driven by not providing full “Level 2” data during the reservation process (e.g. passenger names, departure / arrival airport, etc.)

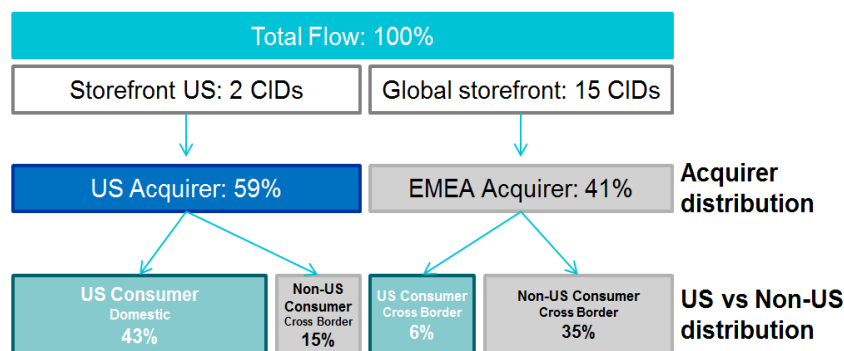
This allowed Ingenico to **advise about an issue** that was resulting in downgraded transactions **that the airline hadn’t yet noticed**

# Data Science and Analytics to improve costs through rerouting

# Transactions Economics: Optimization through flow rerouting

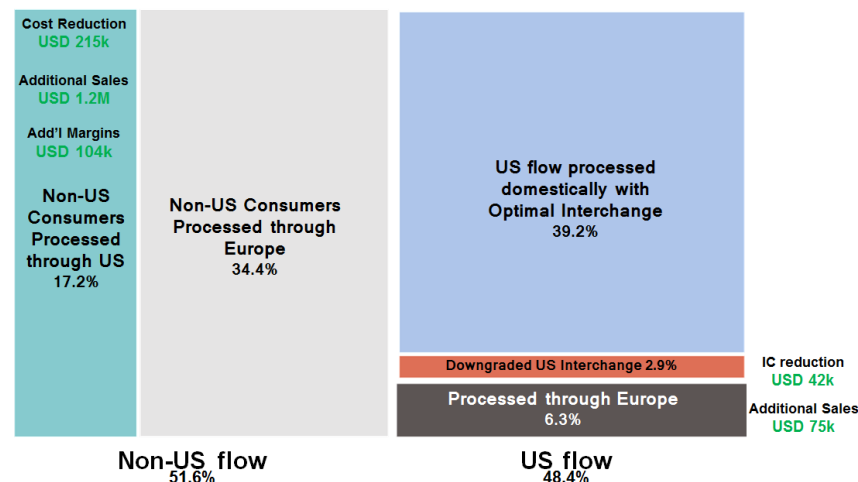
Illustrative Example  
only

## OPTIMIZATION OPPORTUNITIES CURRENT FLOW SETUP: STOREFRONT



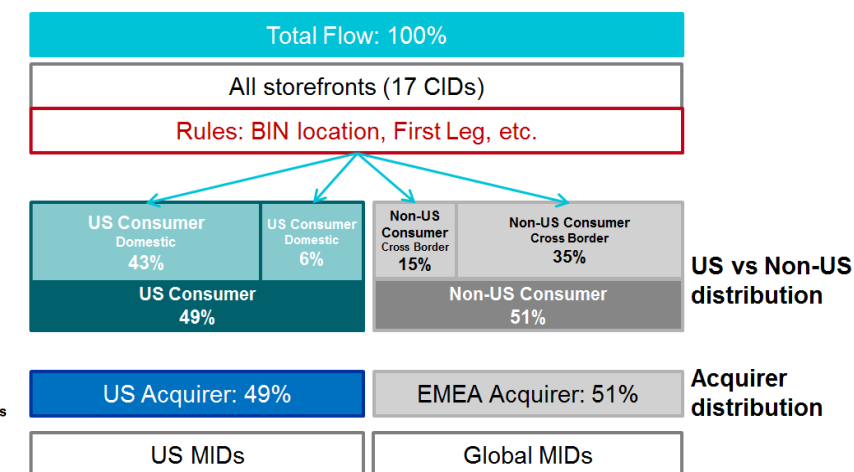
Current setup analysis

## OPTIMIZATION OPPORTUNITIES



Opportunity seeking

## OPTIMIZATION OPPORTUNITIES SMART ROUTING (-) COSTS, (+) ACCEPTANCE



Setup  
recommendations

# Cost optimization through flow routing, improved acceptance and downgrade optimization

Illustrative Example only

## OPTIMIZATION OPPORTUNITIES DOMESTIC US INTERCHANGE DOWNGRADE OPTIMIZATION

## OPTIMIZATION OPPORTUNITIES SMART ROUTING (-) COSTS, (+) ACCEPTANCE

## OPTIMIZATION OPPORTUNITIES

US Downgrades caused by:



Delays in settlement

**USD 28k**  
annual impact (\*)



Lack of data submission  
(Name, PNR, departure  
airport, etc.)

**USD 14k**  
annual impact



No address  
verification

**USD 8k**  
annual impact

Increase in Approval Rates → **More sales**

Ingenico found opportunities to potentially **improve Merchant's top revenue by approximately USD 1.3M** and **Merchant's margins by USD 257k** based on exploiting processing data<sup>(\*)</sup>

	EMEA Acquirer	US Acquirer	Additional Sales
<b>US Consumers</b>	90.9%	→ <b>91.6%</b>	USD 75.000 (+175 sales)
<b>Non-US Consumers</b>	<b>82.4%</b> ←	77.8%	USD 1.218.000 (+3.178 sales)
<b>Total opportunity</b>			<b>USD 1.293.000 (+3.353 sales)</b>

In USD	Increased Sales	Increased Margins
Improved acceptance rates	1.300.000	104.000 <sup>(**)</sup>
Relocation of non-US Flow		215.000
Downgrades Optimization		42.000
<b>Total estimated Opportunity</b>	<b>1.300.000</b>	<b>361.000</b>

<sup>(\*)</sup> Based on last 12 months of processed volumes at Ingenico

<sup>(\*\*)</sup> Based on Q1 2018 profits

**Downgrade  
identification**

**Auth rate  
improvements**

**Final optimization  
opportunities**



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*“A penny saved is a penny earned”*

---

```
26 client.getConnection(access_token, function(err, response) {
27   if (response) {
28     transactions = response.transactions;
29     accounts = response.accounts;
30     User.update({'accessToken': access_token},
31       {
32         $set: {
33           userAccount: accounts,
34           userTransactions: transactions
35         }, {
36           multi: false
37         },
38         function(err, result) {
39           console.log(err);
40           console.log(result);
41         }
42       });
43
44   res.render('user/account', {title: 'User Account',
45     accounts: accounts,
46     transactions: transactions
47   });
48 } else {
49   User.findOne({'accessToken': access_token}, function(err, user) {
50     transactions = user.userTransactions;
51     accounts = user.userAccount;
52     res.render('user/account', {title: 'User Account',
53       accounts: accounts,
54       transactions: transactions
55     });
56   });
57 }
```

# Thank you

**Please reach out, here are my details**

Ariel Setton

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Ingenico ePayments

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