A DEMOCRATIZAÇÃO DO ACESSO AO CRÉDITO

Outubro 2019

Attention!
Privileged and Confidential
Not for further circulation
Our behavioral patterns have been evolving over the years....
NUMBER OF YEARS EACH TECHNOLOGY TOOK TO REACH 50MM USERS

- Airlines: 68yrs
- Automobiles: 62yrs
- Telephone: 50yrs
- Electricity: 46yrs
- Credit Card: 28yrs
- Television: 22yrs
- ATM: 18yrs
- Computer: 14yrs
- Cell Phone: 12yrs
- Internet: 7yrs
- iPods: 4yrs
- Youtube: 4yrs
- Facebook: 3yrs
- Twitter: 2yrs
NUMBER OF YEARS EACH TECHNOLOGY TOOK TO REACH 50MM USERS

Pokémon Go

19 days
A DAY IN DATA

The exponential growth of data is undoubted, but the numbers behind this explosion – fuelled by internet of things and the use of connected devices – are hard to comprehend, particularly when looked at in the context of one day.

500m tweets are sent every day.

4PB of data created by Facebook, including 350m photos and 100m hours of video watch time.

294bn billion emails are sent each day.

306bn emails to be sent each day by 2020.

3.9bn people use emails.

4TB of data produced by a connected car.

65bn messages sent over WhatsApp and two billion minutes of voice and video calls made.

463EB of data will be created every day by 2025.

95m photos and videos are shared on Instagram.

28PB to be generated from wearable devices by 2020.

DEMYSTIFYING DATA UNITS

<table>
<thead>
<tr>
<th>Unit</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>10^9</td>
</tr>
<tr>
<td>KB</td>
<td>10^3</td>
</tr>
<tr>
<td>MB</td>
<td>10^6</td>
</tr>
<tr>
<td>GB</td>
<td>10^9</td>
</tr>
<tr>
<td>TB</td>
<td>10^12</td>
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<tr>
<td>PB</td>
<td>10^15</td>
</tr>
<tr>
<td>EB</td>
<td>10^18</td>
</tr>
</tbody>
</table>

**Note:** "T" is used as an abbreviation for TB, while an uppercase "B" represents bytes.
ARTIFICIAL INTELLIGENCE

Artificial Intelligence captures the imagination of the world.

MACHINE LEARNING

Machine learning starts to gain traction.

DEEP LEARNING

Deep learning catapults the industry.

- Turing Test Devised 1950
- ELIZA 1964 - 1966
- Edward Shortliffe writes MYCIN, an Expert or Rule based System, to classify blood disease 1970s
- IBM Deep Blue defeats Grand Master Garry Kasparov in chess 1996
- ImageNet Feeds Deep Learning 2009
- AlphaGo defeats Go champion Lee Sedol 2016

Google I/O 2018
Artificial Intelligence could automate close to 50% of jobs in the Western world within the next two decades.

Future Applications Of Cognitive Intelligence

- Agriculture
- Farm Mechanization
- Diagnostic APIs
- Healthcare
- Personalized Treatment
- Manufacturing
- Cobots
- Automotive
- Self-driving cars
- Social Media
- Intelligent Filters
- Financial Services
- Innovative Payment Modes
- Fraudulent Detection
- Edge Computing
- Infotainment systems
- Facial Identification
In an Open Banking System

- Account aggregation for a 360° financial picture
- Secure use of third-party financial service apps (no need to share login information)
- Easy financial product comparisons
- Personalized financial product offerings
- Account transaction notifications to alert of potential fraud or mistaken transactions

CONSUMERS

- Less red tape with useful digital services delivered seamlessly and safely
- Aggregation of payroll, auditing, accounting and more for easier and deeper operational insight

SMALL BUSINESSES

- Faster adjudication of loans, auto financing and mortgages with potentially lower rates
- Automation of cash flows, invoices and assets
The bank consumer experience in Brazil is even worse than in the US where consumers prefer to go to the dentist instead of the bank.

Creditworthy individuals pay higher interest rates due to market inefficiencies

Adverse selection creates more delinquency

Banks moved bad CX online

- Physical Tokens
- QR codes
- Multiple Levels of security
- Complicated Layout
- Terrible products
REBEL offers lower interest rates than the market for unsecured personal credit.

Brazil has the 2nd highest interest rate spread (39%*) in the world.

Source: Brazilian Central Bank
Brazil does not have efficient credit scores. Therefore we had to develop our proprietary underwriting model and state-of-the-art AI to capture and process thousands of variables and calculate the credit-worthiness of an individual within milliseconds.

**Traditional Credit Underwriting in Brazil**

- Credit Inquires
- Past due & Defaults
- Market Score

**REBEL’s Analytics (Over 4,000 variables)**

- REBEL Score

**Graph:**

- % Clients vs. Score
- Rebel Score vs. Market Score

Our score outperforms a typical bureau by 5X within the price and default range that our product was designed for.
100% online process.
No documents
No papers
Tech / AI / ML powering our customer experience

User Experience
Easy and quick application process

Risk Analysis
More than 2000 variables analysed in milliseconds

Credit Decision
Fully automated and powered by machine learning

Application → Questionnaires → External data processing

Forms → Bank Connection → External Data

Model 1
Price / Basic

Bank Connection + Anti Fraud → Income validation model → Credit model → Decision with risk optimisation

ML
How AI and Open banking can make our financial system more transparent?
Open Banking no BB

O BB lidera a iniciativa global de Open Banking aqui no Brasil.

Open banking são APIs disponibilizadas por uma instituição financeira para empresas e aplicativos possam prover serviços integrados às contas de seus clientes. Com as parcerias com startups e empresas de tecnologia, o Ban Brasil irá complementar a sua experiência atual com novas formas de com o banco.

Banco Central inicia processo de implementação do Open Banking (Sistema Financeiro Aberto) no Brasil

O Banco Central deu início a processo de implementação do Open Banking com objetivo de aumentar a eficiência e a competitividade no Sistema Financeiro Nacional e abrir espaço para a atuação de novas empresas do setor. Publicado nesta quarta-feira (24/04), o Comunicado 33.455 estabelece as principais diretrizes que irão orientar a proposta de regulamentação do modelo a ser adotado no Brasil.

Com o Open Banking, o Banco Central busca aumentar a eficiência no Sistema Financeiro Nacional, mediante a promoção de ambiente de negócio mais inclusivo e competitivo, preservando sua segurança e a proteção dos consumidores. Em linha com a recém-aprovada Lei de Proteção de Dados Pessoais, o Open Banking parte do princípio de que os dados bancários pertencem aos clientes e não às instituições financeiras. Dessa forma, desde que autorizadas pelo correntista, as instituições financeiras compartilharão dados, produtos e serviços com outras instituições, por meio de abertura e integração de plataformas e infraestruturas de tecnologia, de forma segura, ágil e conveniente.
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