

FLANDERS INVESTMENT & TRADE MARKET SURVEY

THE ICT SECTOR IN BRAZIL

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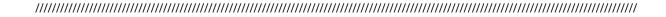


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1. ABSTRACT

The purpose of this report is to give a brief overview of the ICT sector in Brazil. Different segments are highlighted along with a short explanation of the best entry strategies. By reading this study, you get a better picture of what is currently going on in the Brazilian technology scene. Also, important associations and events are mentioned as well as the location of technology parks. By reading the report it becomes clear where the opportunities are in the sector. Different sources such as websites and newspapers were consulted to best describe what is going on in the sector. It is interesting for companies of all sectors as technology is used in every practice.

2. GENERAL INFORMATION

Brazil has a strong ICT market, with 1.5 million people employed, it is expected to account for almost 11% of the GDP in 2020. Total ICT investments reached US\$ 105 billion in 2017. Considering only IT, total investments reached US\$ 38 billion, putting Brazil among the top 10 countries in the world for investments in IT and number one in Latin America. (ABES, 2018)

One of the main fields for IT in Brazil is the banking sector, which invested over BRL 18 billion (USD 5.2 billion) in this area in 2016, according to data from banking federation Febraban. Agribusiness, energy, education, and healthcare are among the other notable sectors in which ICT has been developing over the past decade. Companies such as fintech Nubank, computer manufacturer Positivo Informática and business software developer Totvs are becoming increasingly important in the Brazilian tech scene. (Apex Brasil, 2018)

The main Brazilian software segments are; applications (44.5%), development environments (31.8%), infrastructure and security (21.6%) and domestic production for export (2.1%).

2.1 IT MARKET SHARES

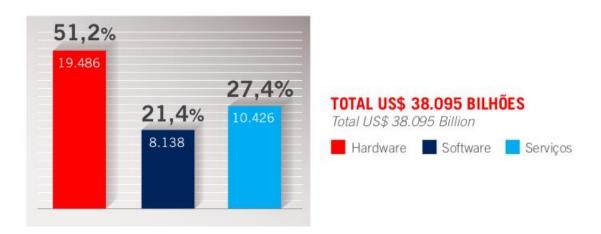


Figure 1: market share of hardware, software and services (2018)1

(ABES, 2018)

2.2 TECHNOLOGY PARKS

Porto Digital – Recife

Porto Digital has two business incubators, 2 business accelerators, 2 research institutions and several government agencies. They currently host 267 organisations in the fields of Information and Communication Technology, Creative Industries and Urban Technologies. The park also hosts a superior education institution, Faculdade Cesar, an initiative two times considered the best ICT centre in the country by the Brazilian government.

http://www.portodigital.org/home

Technology park - Sao José dos Campos
 Sao Paulo has 28 technology parks, one of them is the park in Sao José dos Campos. The other parks are located in among others: Ribeirao Preto, Piracicaba, Sorocaba, Campinas and Santos. http://www.pqtec.org.br/

Tecnopuc – Porto Alegre

The park stimulates research and innovation through partnerships between universities, private institutions and the government. They support R&D, offer personalized services to companies and have a start-up support system and coworking space.

http://www.pucrs.br/tecnopuc/servicos/

BHtec – Belo Horizonte

The technology park is a partnership between the Federal University of Minas Gerais, the government of Minas Gerais and the city of Belo Horizonte. The companies that participate are

¹ https://www.healyconsultants.com/brazil-company-registration/setup-llc/

 $^{^2\ \}underline{\text{http://www.desenvolvimento.sp.gov.br/parques-tecnologicos}}$

inserted in an environment that promotes collaboration with universities and research centres through agreements and partnerships.

http://bhtec.org.br/

Parctec – Fortaleza

This technology park in the north of Brazil also has an incubator called Nutec. It is an initiative from the Brazilian government.

https://www.nutec.ce.gov.br/servicos/partec/

Biotic – Brasilia

Biotic is set up by the development agency of the Federal District. The objective of the park is taking care of management, control and structuring enterprises.

https://www.bioticsa.com.br/

Samambaia technology park – Goiânia

The goal of the park is housing and supporting technology-based companies as well as laboratories and R&D of companies of all sizes and segments. Additionally, the park receives the installation of laboratories and research centres of the University Federal de Goias.

https://www.inovacao.ufg.br/p/16337-parque-tecnologico-samambaia

Sapiens park – Florianopolis

This technology park was set up by the government of Santa Catarina and is an innovation hub. The goal is to host projects and other strategic initiatives to stimulate the development of the region.

http://www.sapiensparque.com.br/

2.3 MANAUS FREE TRADE ZONE

The Manaus free trade zone, spread over the states of Amazonas, Acre, Roraima and Rodônia, is an area with fiscal incentives for companies. The zone has attracted more than 600 companies, including many large, international companies such as: Nokia, Honda, Pepsi and Coca-Cola. There are many fiscal benefits for companies operating there. First of all, an 88% reduction in import duty on the inputs of industrial goods. Another benefit is the 75% reduction on income tax and no tax on industrialized products (IPI). Other incentives are the international warehouse, the storage of foreign and national goods that are under tax control with suspension of the payment of the federal and state tax. The goods can stay there up to five years. To get the benefits, each company is evaluated based on some requirements such as job creation in the area and reinvestment of profit in the region. ³

2.4 EX-TARIFARIO

The Ex-Tariff is an incentive promoted by the Ministry of Industry Development and Foreign Trade (MDIC), whose main objective is promoting investments in capital assets in Brazil through an import duty relief. This regime is applicable only to goods classified as capital, data and telecommunications assets in the Mercosur Harmonized Tariff Schedule, and that do not have a locally produced

³ https://thebrazilbusiness.com/article/manaus-free-trade-zone

counterpart. In order to apply for the Ex-Tariff, the importer must file a request with the Department of Production Development and provide certain documentation for analysis. Following the request, a certificate of non-similarity may be issued, entitling the applicant to the benefit granted, which means a rate of 2 or 0 percent as import duty on the analyzed goods.⁴

3. MARKET ENTRY STRATEGIES

When internationalizing, a company needs to think well before taking any steps. There are various factors that need to be taken into account. Such as; cultural differences and the influence on the way of doing business. A different strategy might be needed for the different market, language barriers, different regulations, etc. The first step in the internationalization process is doing profound research of the market you want to expand to. Secondly, being aware of the differences and anticipating on this before starting the process. When done correctly, offshoring has many benefits for the firm such as; a diverse skill set, more efficient operations and more added value to the onshore work. Highly important is choosing the right market entry strategy, this can make or break the success of the implementation in the new market.

Furthermore, Brazil has signed Double Taxation Treaties with Belgium to avoid double taxation and tax evasion. More information on this regulation can be found here: <a href="http://receita.economia.gov.br/acesso-rapido/legislacao/acordos-internacionais/acordos-para-evitar-a-dupla-tributacao/acordos-para-evitar-a-dupla-tributaca

3.1 GREEN FIELD

A green field investment is a type of FDI when the company builds its operations from the ground up in a foreign country. This can include the construction of a new production facility, building a new distribution hub or office. ⁴ A characteristic of this method is that the company keeps full control over its operations, sales, employees, etc, which seems important for many companies.

Nevertheless, there are some risks: a green field operation requires a big investment. In some countries, it is difficult to get a good relationship with the host country, mainly due to the big cultural differences. Therefore, especially with a green field investment, it is important to do very extensive market research and correctly assess the possible risks and difficulties. Also, this operation asks for a lot of time and effort: setting up the organization, gaining market share, etc.

Especially in Brazil it is quite difficult to start a company, there is a high level of bureaucracy which makes the process take a lot of time and effort.

Setting up an LLC (Limited Liability Company) is commonly used by foreign entrepreneurs in Brazil. There is a minimum of 2 shareholders and 1 director, who can be of any nationality. However, a Brazilian resident needs to be appointed as a legal representative of the company, this can be a local staff member for example. The minimum share capital is \$US1 and the company can be set up within approximately 20 weeks. Corporate tax payable in Brazil is 34% and estimated Brazil employment Visa fees are \$US3.950. You can find an overview of estimated costs (2017) for setting up an LLC in Brazil. ⁵ It is

 $[\]underline{^4_https://www2.deloitte.com/br/en/pages/doing-business-brazil/articles/customs-and-excise-duties.html}$

⁵ https://www.investopedia.com/terms/g/greenfield.asp

important to work closely together with local partners and institutions to understand the complex local legal and economic environment.

There are a lot of steps that need to be undertaken when starting a company in Brazil, therefore it is best to hire a local accountant to take all the documents to the Board of Trade of the Brazilian state where you intend to open the company. Following documents are needed:

- Articles of incorporation/bylaws. One must choose the revenue method for calculating taxes when filing these – either the "National Simple" (Simples Nacional) for small businesses, Taxable Income or Estimated Profit - and make a number of other decisions, such as the company's name, the legal representatives in charge of the company's administration, etc. Legal assistance is also recommended in order to prepare the articles of incorporation/bylaws;
- Power of attorney given to the Brazilian Representative;
- Copies of the personal documents of the representatives, including the visa; and the address voucher for where the company will be established;
- Corporate taxpayer ID number (CNPJ);
- State and Municipal Taxpayer Registries;
- Municipal License / Operation Permit (Alvará ou Licença de Funcionamento); and
- National Institute of Social Security (Previdência Social) and Special Fund for Unemployment FGTS Registrations.

All foreign documents need to be translated into Portuguese by a sworn translator and notarized in the Bureau of Registry of Deeds and Documents (Cartório). The paperwork must be also notarized by a Brazilian consulate located in the associate's country of origin. ⁶

To open a business bank account, companies need to fill out certain forms and provide legal documents, such as:

- Identification, proof of registration and registration status with the National
- Registry of Legal Entities of the Ministry of Finance/Internal Revenue Service issued no more than 30 days earlier;
- Identification of Legal Partners and Managers Submit documents and information form for the registration of individuals who are shareholders or officers of the company/organization (ID, CPF, proof of residence):
- Chattel property, real estate and livestock (e.g. proof of property ownership, proof of payment of property tax or ITR for the last year, Certificate of Ownership, Registration and Licensing of Vehicles)
- Authorization for waiver of registration information SCR (Credit information system)
- Authorization for waiver of registration information REFIS (Taxpayers Program)

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⁶ https://www.healyconsultants.com/brazil-company-registration/setup-llc/

3.2 MERGER AND ACQUISITION

A merger is when two companies merge together to form one new company. An acquisition is when one company buys another one.

An advantage of this strategy is that it is fast: by merging with or acquiring a local company you immediately gain the market knowledge and the market share in the foreign country. Although this is a big advantage, there are also some disadvantages. First of all, it can be very expensive, the investment could be better spent on a green field operation. Also, the company culture of the 2 companies may not match and cause problems. The company should be careful with the cultural differences as they can have a large impact.

3.3 JOINT VENTURE

Another way of starting a business in Brazil can be a joint venture with a Brazilian company. A joint venture is a partnership between two or more companies to accomplish a common goal. This permits to make use of the market knowledge the local company has and to use their connections. Important here is to only partner up with a reliable, healthy company and to make good agreements. Also, be aware of the cultural difference between the two companies and anticipate, mutual respect and comprehension is important.

4. FINTECH

Fintech or financial technology is new technology that seeks to improve and automate the delivery and use of financial services. At its core, fintech is utilized to help companies, business owners and consumers better manage their financial operations, processes and lives by utilizing specialized software and algorithms that are used on computers and, increasingly, smartphones.⁷

With 377 Fintech start-ups in 2018⁸, Brazil is a booming market. The country is a pioneer in the adoption of IT for the financial segment. Fintech is popular because of the banking sector that is losing the trust of the local public. Also, there is the need of cheaper banking services, as Brazil banks charge high prices for their services. Five of Brazil's biggest banks hold 84% of the nation's total loans (compared to 30% in the U.S.). According to a study done by EY, the Fintech adoption rate of Brazil is 40%, above the average of 33% and high above the Belgian adoption rate of 13%.⁹ On the customer side, smartphone adoption rates are the highest of any Latin American country, making mobile apps a particularly convenient way for finance companies to tap into a large segment of the population.¹⁰

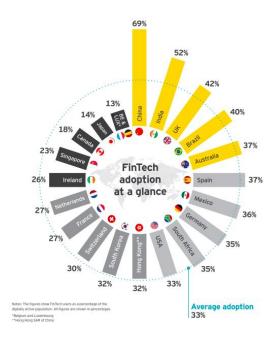


Figure 2: Fintech adoption rate of 20 markets

When starting a Fintech company in Brazil, some regulations apply. First of all, companies that want to offer financial services need a license from the Central Bank of Brazil to operate as a bank, credit company, etc. If the service involves securities, the company also needs to obtain authorization of the Brazilian Exchange and Securities Commission.

 $^{^{7}\ \}underline{\text{http://www.apexbrasil.com.br/en/how-to-set-up-a-company-in-brazil}}$

⁸ https://www.investopedia.com/terms/f/fintech.asp

⁹ https://www.statista.com/statistics/892680/brazil-number-fintech-startups/

https://www.ey.com/Publication/vwLUAssets/ey-fintech-adoption-index-2017/\$FILE/ey-fintech-adoption-index-2017.pdf

Brazil already has a lot of success stories on the Fintech market. In 2018, NuBank became Brazil's third Unicorn start-up. NuBank is a digital bank and credit card operator, located in Sao Paulo. The company offers 2 products: NuConta (a fully digital bank account) and a credit card. Both are fully controllable through the mobile app, without fees. The goal of the company is to reach the Brazilian underbanked population, which is estimated around 60 million people. Other successful Brazilian Fintechs are PagSeguro and Stone.

4.1 TRENDS FOR 2019

According to Guilherme Horn, angel investor in more than 30 startups and member of the board of the Brazilian Fintech association, there are five trends in the Brazilian fintech sector for 2019.

- First of all, open banking, using open API's (Application Programming Interface) that enable third
 party developers to build applications and services around financial institutions. Open banking gives
 Fintechs access to information needed to develop solutions for the financial sector. The financial
 institutions will create the API's so that other companies can create solutions with great added
 value. This way, banks can focus on their primary activities and the developing of applications is
 done by specialized companies.
- 2. Secondly, another form of payment is getting more popular. The so called 'fast payment' allows people to pay with a QR code. Scanning the QR code with the camera of a cell phone and the bill is being paid. This new form of payment will also provide new opportunities for non-financial companies, bringing simpler and cheaper products to the consumer.
- 3. Furthermore, credit as a service, created by Brazilian Fintech ZEN finance is an interesting segment. This platform allows companies to provide a credit to their suppliers and customers. Sources of credit in Brazil are expensive, limited and bureaucratic so this platform is a solution for companies to give an easy credit. Also, now that Brazilians have a more liberal way of thinking, the market is opening up towards the exterior. Making investments abroad easier in more mature markets such as the USA.
- 4. Last but not least, cryptocurrencies provide great opportunities with blockchain projects that cross borders diverse economic segments.

2019 is expected to attract many foreign investments in the Brazilian Fintech market. ¹² A niche segment of fintech is insurtech, short for insurance technology. The goal of insurtech companies is to give easy access to personalized and affordable insurance plans. This can be any kind of insurance, health or car insurance for example. This way, people can avoid the bureaucratic process of buying an insurance plan. Insurtech companies have access to a lot of consumer data, using the latest technology they can analyze it and generate significant benefit. On the basis of the data and using algorithms, the company can for example offer a better, cheaper plan to good drivers. Top insurtechs in Brazil include Kakau, Youse and Minuto Seguros. ¹³

 $^{^{11}\,\}underline{\text{https://internationalbanker.com/banking/brazilian-banking-seriously-impacted-fintech/}}$

https://nubank.com.br/

https://link.estadao.com.br/blogs/seu-bolso-na-era-digital/as-5-tendencias-de-fintech-para-2019/

4.2 OPPORTUNITIES

In June 2018, Brazil had 377 fintech companies. 25% (96 start-ups) of them are focused on payments and remittances, for example PagBrasil. The Fintech market is continuously evolving, creating a lot of opportunities for foreign investors.

Various foreign investors have already invested in Brazilian Fintech companies. For example, the venture capital firm Sequoia Capital (USA) was a key investor in unicorn Fintech NuBank.¹⁴

4.3 LANDSCAPE

Brazil has an interesting fintech ecosystem, with a lot of innovative companies on the market. At least 3 Brazilian fintech's announced going to an IPO in 2018, being PagSeguro, Inter (digital bank) and Stone. PagSeguro went to IPO in the beginning of 2018 on the NYSE (New York Stock Exchange) being the 4th largest IPO in technology in history. The company offers a free digital account centralizing all cash-in options, functionalities, services and cash-out options in a single ecosystem. This way, clients can grow their businesses in a safe, affordable, scalable and simple way, all without needing a bank account. ¹⁵ PagSeguro is the leader by being the mayor online payment platform in a market dominated by traditional banks. ¹⁶

In 2018, Stone went to IPO on New York NASDAQ, raising 1,22 billion USD. Among the investors are 3G Capital and Madrone Capital Partners, that controls a part of the fortune of the Walton family, the main shareholder of the Walmart stores. The company intends to use the raised money for mergers and acquisitions to further grow the company. Stone is a direct competitor of PagSeguro. ¹⁷ Inter sold its stocks on B3, the Brazilian stock exchange located in Sao Paulo and biggest stock exchange of Latin America.

The main segments are payments and remittances (25%), financial business management (17%) and loans (15%). What grew the most in the past year is the digital banking segment with the huge growth of neobanks such as Inter and Neon as well as payment companies who offer a pre-paid account such as Nubank. 31% of the companies say they are ready to expand more, and 35% already are in the phase of expansion. 28% of Brazilian fintechs are focused on the B2B market, companies and financial institutions. They offer fintegration, offering an integrated service. Nubank announced in May 2019 they are opening an office in Mexico; this will be their first operation outside Brazil. The choice of Mexico was made for various reason, the principal being that the market is quite equal to the Brazilian market. Also, there the focus will be on reaching the unbanked population and offering a cheaper bank option than traditional banks do. ¹⁸

¹⁴ https://www.conexaofintech.com.br/guia/o-que-e-insurtech/

¹⁵ https://gomedici.com/investors-brazil-fintech-industry/

¹⁶ http://investors.pagseguro.com/CorporateProfile

¹⁷ http://www.investimentosenoticias.com.br/noticias/negocios/ipo-do-pagseguro-foi-considerado-o-principal-deal-de-2018

¹⁸ https://forbes.uol.com.br/last/2018/10/brasileira-stone-levanta-us-15-bi-em-ipo-nos-eua/

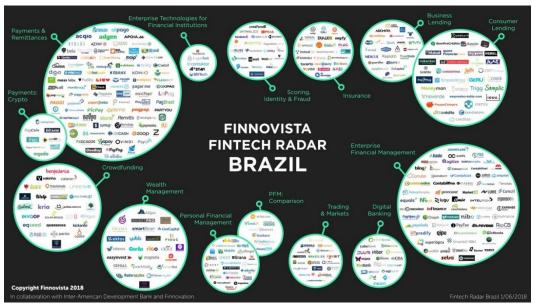


Figure 3: Fintech map 2018¹⁹

4.4 FOREIGN FINTECH'S ACTIVE

- N26

In 2019, N26, a German digital bank will be opening a subsidiary in Brazil as its first move into Latin America. The company offers a free current account and a Debit Mastercard for all its customers. N26 turned into a unicorn company in May 2019.

Revolut

English banking company Revolut announced it is opening an office in Brazil in 2019. The company offers banking services such as a pre-paid debit card, currency exchange and cryptocurrency exchange. The Brasil office will be the first move of Revolut into South America.²⁰

¹⁹ https://br.reuters.com/article/internetNews/idBRKCNISD1OL-OBRIN

²⁰ https://finnovation.com.br/mapa-de-fintechs-brasil-maio-de-2018/

²¹ https://www.linkedin.com/pulse/theres-neobanking-war-coming-brazil-bruno-diniz/

4.5 EVENTS

Cards Future Payment

29 – 31 October 2019 Sao Paulo expo

https://www.cards-expo.com.br/en/home.html

Innovation Pay

23 October 2019 Sao Paulo expo

https://innovationpay.fintechs.com.br/palestrantes/

CIAB Febraban

11 – 13 June 2019 Transamerica Expo Sao Paulo http://www.ciab.com.br/en/home

Fintech Conference

22 May 2019

https://eventos.startse.com.br/fintech-conference/

Fintech Summit (Sao Paulo Techweek)

23 - 29 November 2019

https://saopaulotechweek.com/

- Fintouch

No date known yet for 2019

https://fintouch.com.br/programacao/

4.6 ASSOCIATIONS

ABFintech

https://www.abfintechs.com.br/

Brazilian association of digital credit (ABCD)

https://www.creditodigital.org.br/

5. CYBERSECURITY

In 2017, Brazil recorded 1.96 million fraud attempts or one every 16 seconds. This is the highest rate in three years according to data from Serasa Experian. This number could be explained by the augmentation of the credit market, the demand for loans increased with 4.9% in 2017. With a bigger flux of people, it gets more interesting for criminals. The most fraud was done through; buying cell phone with false or robbed document, scammer asking for a credit card with false documents and scammer buys electronics with false or robbed identification. The main target for frauds is the telecommunication sector with 716 thousand attempts, 36,5% of the total. Criminals use consumer data to open cell phone accounts and buy devices. When successful, it is a gateway for the criminal to larger fraud in other segments. For example: the scammer opens a cell phone account to get a proof of residence and is then able to open a bank account. The criminal uses credit cards and make bank loans on behalf of others. The second target sector is the service sector with 628 thousand attempts, 32% of the total. On the third place comes the financial sector with 462 thousand attempts, 23% of the total. (Melo, 2018)

5.1 EVENTS

- Cyber security summit
 25 26 June 2019
 Rooftop 5 convention center
 https://www.cybersecuritysummit.com.br/
- CNASI: Segurança da informação
 10 11 June 2019
 Hotel Pullman Vila Olimpia
 http://www.cnasi.com.br/home2018
- Security Leaders9 10 October 2019http://www.securityleaders.com.br/
- Roadsec
 23 November 2019
 Audio Francisco Matarazzo
 https://roadsec.com.br/saopaulo2019

5.2 ASSOCIATIONS

 ASEGI (Associação Brasileira de Profissionais e Empresas de Segurança da Informação e Defesa Cibernética)
 https://www.asegibrasil.com.br/

6. PAYMENT SUPPLIES

The Brazilian banking sector is dominated by the 5 main banks, respectively: Itaú Unibanco, Banco do Brasil, Bradesco, Santander and Banco Safra. The market is thus dominated by these giants, which makes the prices of financial services raise significantly.

The main payment method in Brazil is credit cards, issued by local banks and limited to national payments in Brazilian Real. Though, the credit cards carry the international labels such as Visa and MasterCard. Furthermore, a commonly used form is the 'Boleto Bancário', a ticket that can be payed in cash at ATM's, Post offices, Lottery agents as well as through online banking. This is a safe payment method since there is no chargeback risk.

57% of online payments are done by credit card compared to 25% done by Boleto Bancário. The other 13% is done by online bank transfer and 5% by debit card. 21

It is important to know for international companies entering the market that 90% of online purchases is done with national payment methods. Around 70% of credit cards issued in Brazil (also Visa and MasterCard) are limited to national purchases in Brazilian Real. Local payments are not possible for international companies without a local partner. Therefore, having a local payment service provider is key in succeeding in the Brazilian market. ²²

There are a lot of mobile payment options available, a few of them mentioned below. First of all, it is possible to pay by SMS offered by mobile operators such as 'Oi Carteira'. The payment is done through phone credit or charged on the phone bill. This form of payment is becoming very popular in Brazil because it is easy and fast, safe and you don't even need a bank account. Another form, the most popular in Brazil, is internet banking. Payments can be done online with a normal bank account, also the 'Boleto Bancário' can be payed online. Furthermore, you get access to your banking agent online via chat for quick resolution of problems. Another commonly-used option is the payment via digital wallet, such as PayPal, PagSeguro and PicPay Pro. This payment form is well-known by Brazilians and doesn't require the bureaucracy to open an account. Also, it doesn't have the high maintenance fee that Brazilian banks charge their clients. ²³

Important to mention is the fact that contactless payment isn't common in Brazil. Contactless payment uses NFC (Near Field Communication) technology meaning you only need to move your phone close to the paying machine to effectuate the payment. This way, the money is transferred directly from the bank account or credit card of the client. It isn't used much in Brazil because the stores don't have appropriate machines with the NFC function. But also, because only the newer and expensive phones possess the NFC function. It does exist in Brazil but is not used frequently.

²² https://www.pagbrasil.com/online-payments-in-brazil/

²³ https://www.pagbrasil.com/online-payments-in-brazil/

²⁴ https://br.mobiletransaction.org/pagamento-via-celular-no-brasil/

6.1 TRENDS

There are a lot of start-ups in Brazil offering alternative banking services. Because traditional banks cover such high prices, entrepreneurs understand they need to offer an alternative. Digital banks are rising in Brazil, for example the unicorn start-up Nubank. This digital bank and credit card operator is a highly successful fintech unicorn in Brazil. They have 2 products, the NuConta which is a digital account, and an international credit card, both without fees. This is their biggest asset, as Brazilian traditional banks charge high prices for bank accounts. ²⁴

Other Brazilian digital banks are Inter (also offers a free bank account), Neon and Banco Original that charge a small fee for their services.

6.2 EVENTS

Congresso de Meios Eletrônicos de Pagamento (CMEP)
 25 – 26 March 2019
 Teatro Santander São Paulo
 https://www.cmepabecs.com.br/

6.3 ASSOCIATIONS

- ABIPAG (Associação Brasileira de Instituições de Pagamentos) https://www.abipag.com.br/
- PAGOS (Associação de Gestão de Pagamentos Eletrônicos) https://www.pagos.org.br/
- ABECS (Associação Brasileira das Empresas de Cartões de Crédito e Serviços) https://www.abecs.org.br/

²⁵ https://nubank.com.br/

7. SOFTWARE

In 2018, 47 billion US dollars were invested in the Brazilian IT market (Software, Hardware and Services), making it the 9th biggest market worldwide. 51,3% of these investments went to Hardware, 26,2% to Services and 22,5% to Software. The Brazilian IT market grew by 9,8% and is expected to grow more with 10,5% in 2019, compared to 6,7% growth worldwide.

Regarding ICT investments, Brazil ranked 7th worldwide with a total of 97 billion US dollars of investments. The country is by far number one in Latin America in both IT and ICT investments, followed by Mexico and Argentina.

Predictions for 2019 are that the IT market will grow more with 10,5% and the ICT market with 4,9%. More specific, the segment of Information Security will grow twice as fast. Furthermore, it is expected that the use of Artificial Intelligence will augment even more. For example, automatic customer service agents, fraud investigation and automation of IT. ²⁵

ABES, the Brazilian Association of Software Companies, estimates that around 77% of the software commercialized in Brazil is developed abroad. The widely-diffused software such as Microsoft and antivirus programs all come from other countries. According to ABES the national number of developers is growing, due to the popularization of the 'third platform' which involves mobile devices, cloud computing, social networking and Big Data analytics. A main difficult in the sector is the lack of specialized manpower. It is estimated that there is a shortage of around 70.000 professionals in this area. ²⁶

According to a study performed by ABES in 2018, 49.3% of Brazilian software companies are microcompanies (10 or less employees). 46.2% are small companies (10 to 99 employees), 4% medium (100 - 500 employees) and 0.5% big (more than 500 employees). Today, the software sector accounts for 1.9% of the Brazilian GDP.

7.1 EVENTS

The Developer's Conference

16 – 20 July 2019 Anhembi Morumbi

http://www.thedevelopersconference.com.br/tdc/2019/index.html

Futurecom

28 – 31 October 2019 Sao Paulo Expo https://www.futurecom.com.br/pt/home.html

– QCon

6 – 8 May 2019 Centro de Convenções Frei Caneca https://qconsp.com/

 $[\]frac{26}{http://central.abessoftware.com.br/Content/UploadedFiles/Arquivos/Dados\%202011/ABES-EstudoMercadoBrasileirodeSoftware-2019-Parcial-Ingles-Abr-2019.pdf}$

 $^{^{27}}$ https://thebrazilbusiness.com/article/brazilian-software-market

7.2 ASSOCIATIONS ABES Software (Associação Brasileira das Empresas de Software) http://www.abessoftware.com.br/

8. GAMING

The gaming market in Brazil is in full expansion, according to numbers from Newzoo, there were 66.3 million players in 2017. This number augmented to 75.5 million players in 2018 with the market being worth 1.5 billion dollars. Brazil is the leading country in Latin America and on the 13th place worldwide. With the presence of smartphones, it is much easier to play games, 82% of Brazilians play games on the smartphone (PayPal and Superdata). 1 out of 3 Brazilian gamers prefer to play on the smartphone but 70% plays on more than one device. According to the study 'Pesquisa Games Brasil' six out of ten players are feminine. Both games are the most popular to be played. Since 2010 the gaming market has been growing significantly with a larger number of Brazilian gaming producers.

There are some Brazilian-developed games that are played worldwide. One of them is Horizon Chase developed by Aquiris Game Studio. The game was released in 2015 for iOS and Android. In 2018, a revamped version of the game was released for PlayStation, Xbox and Nintendo Switch. Horizon Chase has won the price of 'Best Indie Game 2016' on the Brazilian Independent Game Festival (BIG). This festival is an important event for gaming in Brazil, with lots of international specialists of the industry present. Aquiris Game Studio was found in 2007 and is located in Porto Alegre, the south of Brazil. Another successful game produced by the company is Ballistic. ²⁹

Also successful is Toren, produced by Brazilian Swordtales and published by American Versus Evil. It is an action-adventure puzzle game for Microsoft Windows and PlayStation 4. It is the first game that received R\$ 75.000 financing from the Rouanet law. This law provides monetary funds for use in art and culture.

Imax Games, a Brazilian developer of games, works together with Unity. Unity is a game-development platform that reaches 600 million players worldwide through games made by Imax. Among their clients are companies such as Samsung, Unilever and BMW. ³⁰

One of the game producers in Brazil is Hoplon, located in Florianopolis. The company produces multiplayer and free-to-play games. Hoplon publishes its games worldwide and is one of the most important producers of games in Brazil. ³¹

Another developer worth to mention is Behold Studios, a small indie game developer, from Brasilia. The company has won some awards with their games such as the Independent Games Festival in 2013. Their games are found on all major platforms such as Xbox, PlayStation, iOS and Android. ³²

²⁸ http://www.bebrasil.com.br/en/news/brazils-booming-gaming-industry

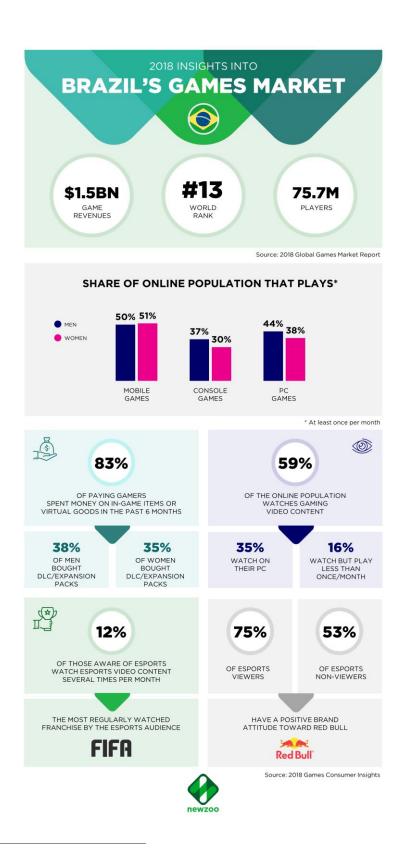
 $^{^{29}\ \}underline{\text{https://exame.abril.com.br/negocios/dino/o-crescimento-da-industria-de-games-no-brasil/}$

³⁰ https://www.aquiris.com.br/en/

³¹ http://imaxgames.com.br/site/webroot/blog/

³² http://www.hoplon.com/site/games.php

³³ https://www.beholdstudios.com.br/



 $^{{\}tt https://newzoo.com/insights/infographics/brazil-games-market-2018/}$

8.1 EVENTS

Brazil Independent Game festival

26 – 30 June 2019 https://www.bigfestival.com.br/

SB Games

28 – 31 October 2019 https://www.sbgames.org/sbgames2019/en/welcome-to-sbgames-2019/

Brazil Game Show

9 – 13 October 2019 http://www.brasilgameshow.com.br/

Brazilian Gaming Congress (BGC)

23 - 25 June 2019

https://www.brasiliangamingcongress.com/

8.2 ASSOCIATIONS

Abra games

http://www.abragames.org/

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