BRAZILIAN SOFTWARE MARKET 2024

SCENARIO AND TRENDS

ABES
associação brasileira das empresas de software

Brasil mais digital
e menos desigual

ABES associação brasileira das empresas de software

DADOS INTERNACIONAIS DE CATALOGAÇÃO NA PUBLICAÇÃO (CIP)
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1 EXECUTIVE SUMMARY

SOFTWARE AND SERVICES GROW, HARDWARE DECREASES: MARKET STAGNANT IN 2023

In 2023, Brazil gained positions in all rankings determined in the ABES Study on the Brazilian Software Market. We are once again among the 10 countries with the highest investment in IT in the world, which is very positive. Unfortunately, these achievements came more from the economic aspect (appreciation of the Real against the Dollar, the base currency of the Study) than due to Market growth. In fact, the Brazilian IT Market last year was practically stagnant (growth of -0.4%), while the average global growth was 4.1%. This is very worrying, as now we are at a time of the emerging of new disruptive technologies, such as Generative Artificial Intelligence, Data Analytics, among others, which should bring great gains in productivity and competitiveness, and Brazil runs the risk of losing this new window of opportunity.

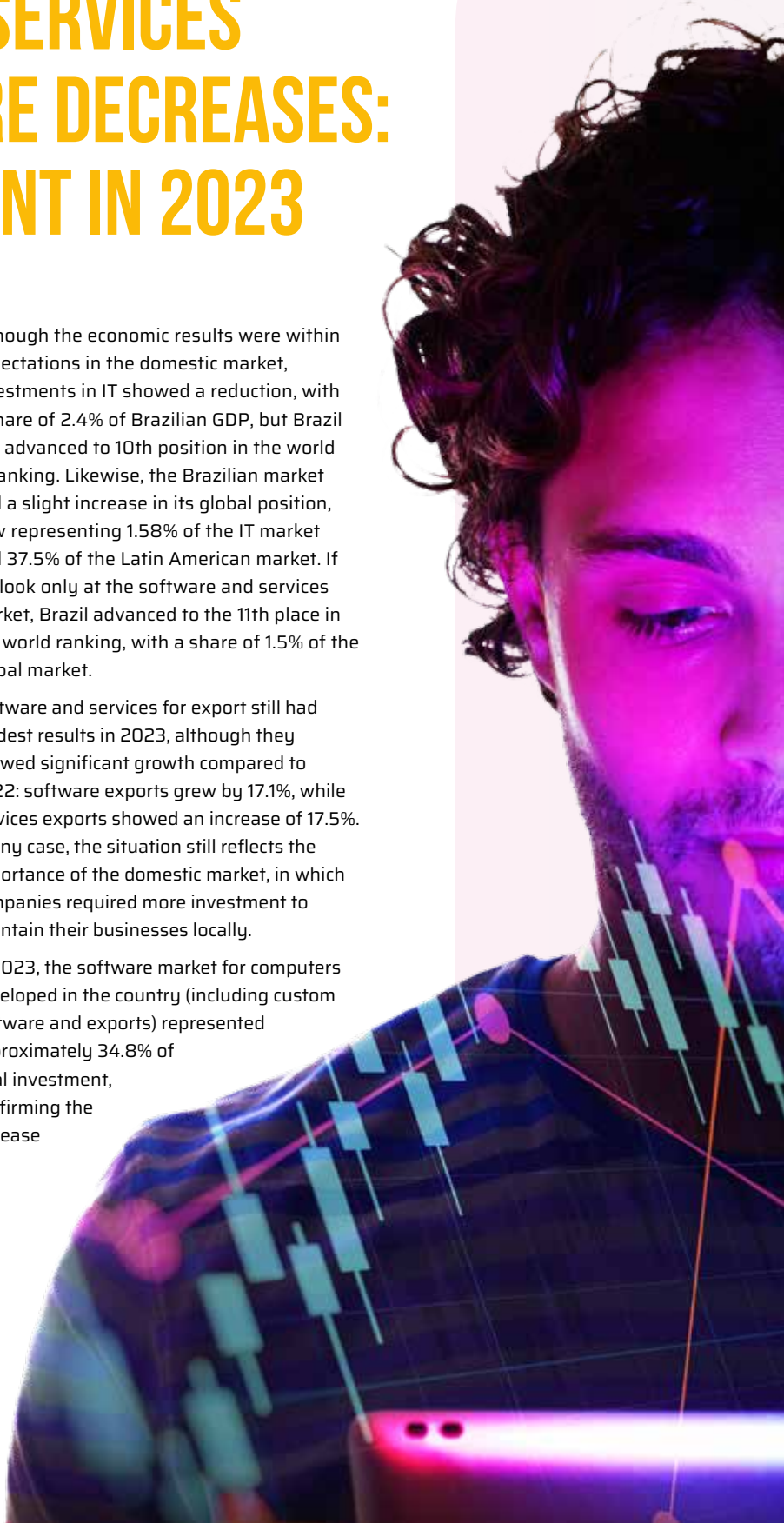
In 2023, global IT production showed a growth of 4.1%, while in Brazil, the market experienced a slight reduction of 0.4%, with an investment of R$ 262.38 billion (US$ 50.76 billion), if considered the software, services, hardware markets as well as the segment's exports.

The decrease in the hardware market, which slowed by around 11% in 2023, was largely responsible for this reduction in IT investments in the country.

Although the economic results were within expectations in the domestic market, investments in IT showed a reduction, with a share of 2.4% of Brazilian GDP, but Brazil still advanced to 10th position in the world IT ranking. Likewise, the Brazilian market had a slight increase in its global position, now representing 1.58% of the IT market and 37.5% of the Latin American market. If we look only at the software and services market, Brazil advanced to the 11th place in the world ranking, with a share of 1.5% of the global market.

Software and services for export still had modest results in 2023, although they showed significant growth compared to 2022: software exports grew by 17.1%, while services exports showed an increase of 17.5%. In any case, the situation still reflects the importance of the domestic market, in which companies required more investment to maintain their businesses locally.

In 2023, the software market for computers developed in the country (including custom software and exports) represented approximately 34.8% of total investment, confirming the increase



in the trend of participation of software developed in the country in relation to the total market, a trend that has been highlighted since the beginning of this study.

The study revealed around 37,602 companies dedicated to the development and production of software, distribution and provision of services in the national market, with 63.6% of them having as their main activity the development and production of software or provision of services. Considering only the 9,062 companies that work in software development and production, around 92.4% can be classified as micro and small companies, according to an analysis carried out using the number of employees criterion (up to 99 employees).

Approximately 52% of the Brazilian user market is made up of companies in the Finance, Services and Telecom sectors, followed by Industry and Commerce, Government, Agroindustry and others. The Government vertical showed a small decline in relation to the previous year, reaching a share of 6.6%. At the same time, the Commerce vertical showed the biggest increase in IT investments in 2023, with growth of around 27.3% in overall participation.

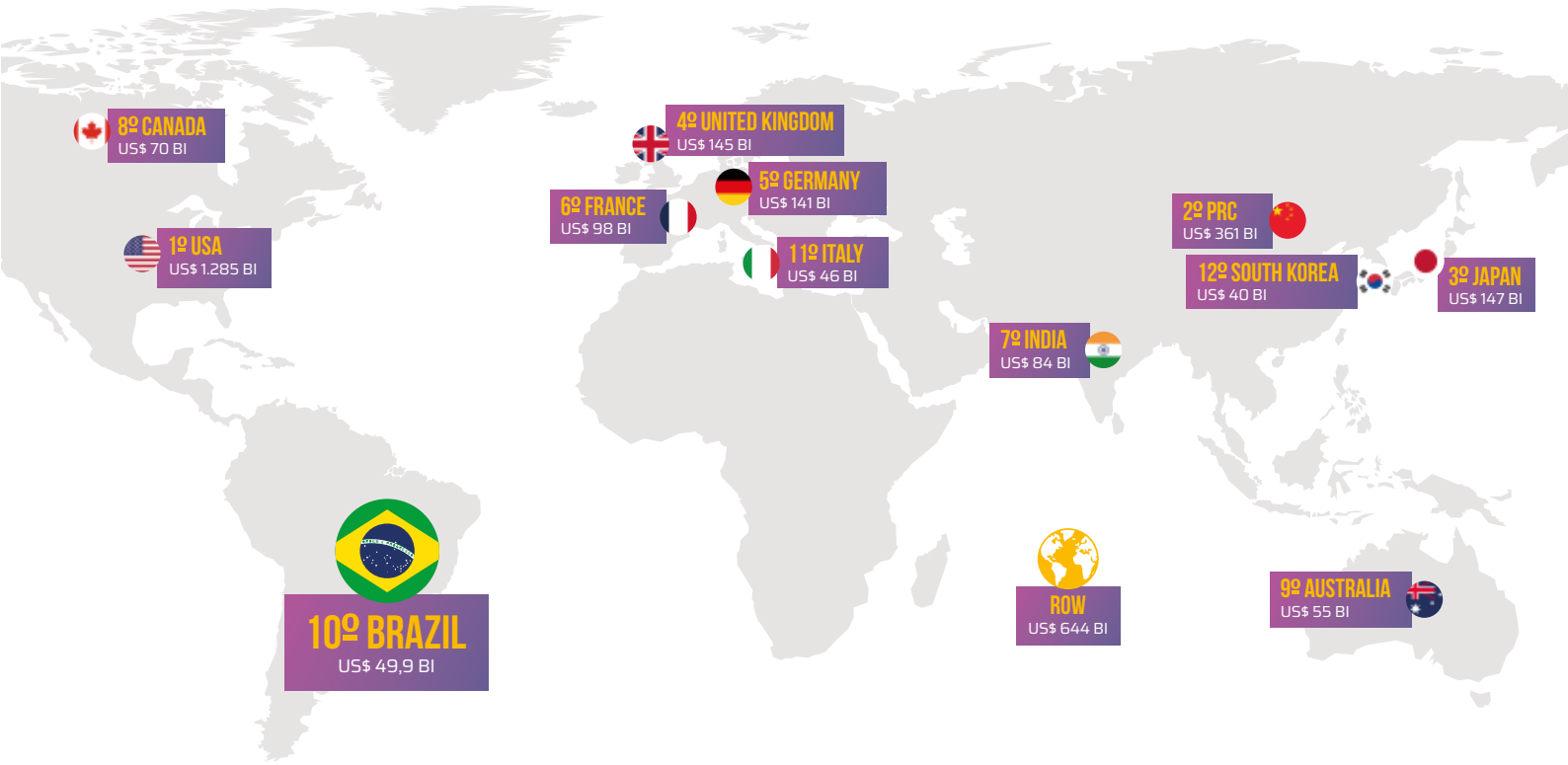
In terms of equipment, hardware and mobility, although the general volume of investments fell by 7.4%, “smartphones” continue to lead investments in the segment, representing 79.5% of the market. The reduction in investments in hardware was one of the factors that contributed to the stagnation of total IT investments in Brazil in 2023. In relation to active data connections in Brazil, there was a small increase, around 3. 0% in the year.

In the cloud computing segment, increases in cloud licensing were identified, with particular emphasis on Collaborative Applications, CRM Applications and Content Applications. In the IoT segment, including connectivity hardware, software and services, the market also grew, with a rate of 20.2% compared to 2021.

> *More than 90% of large companies already have some instance enabled by Artificial Intelligence. AI will reach the public with a greater presence embedded in devices in the year 2024. Estimates indicate that devices with embedded AI will be the major sales drivers from 2026.*

2 IT MARKET 2023

IT WORLD MARKET - 2023

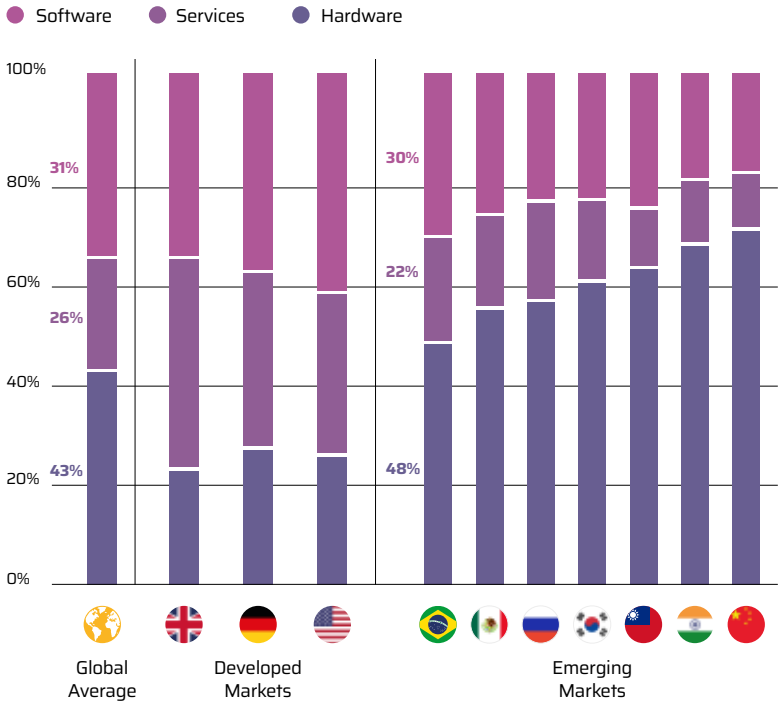


TOTAL US$ 3.166 BI

POSITION	COUNTRY	MERKET US$ BILLION
1ª	USA	1.285
2ª	PRC	361
3ª	Japan	147
4ª	United Kingdon	145
5ª	Germany	141
6ª	France	98
7ª	India	84
8ª	Canada	70
9ª	Australia	55
10ª	**Brazil**	**49,9**
11ª	Italy	46
12ª	Korea	40
	ROW	644
TOTAL		**3.166**

Domestic market only, export excluded

WORLD IT MARKET DISTRIBUTION



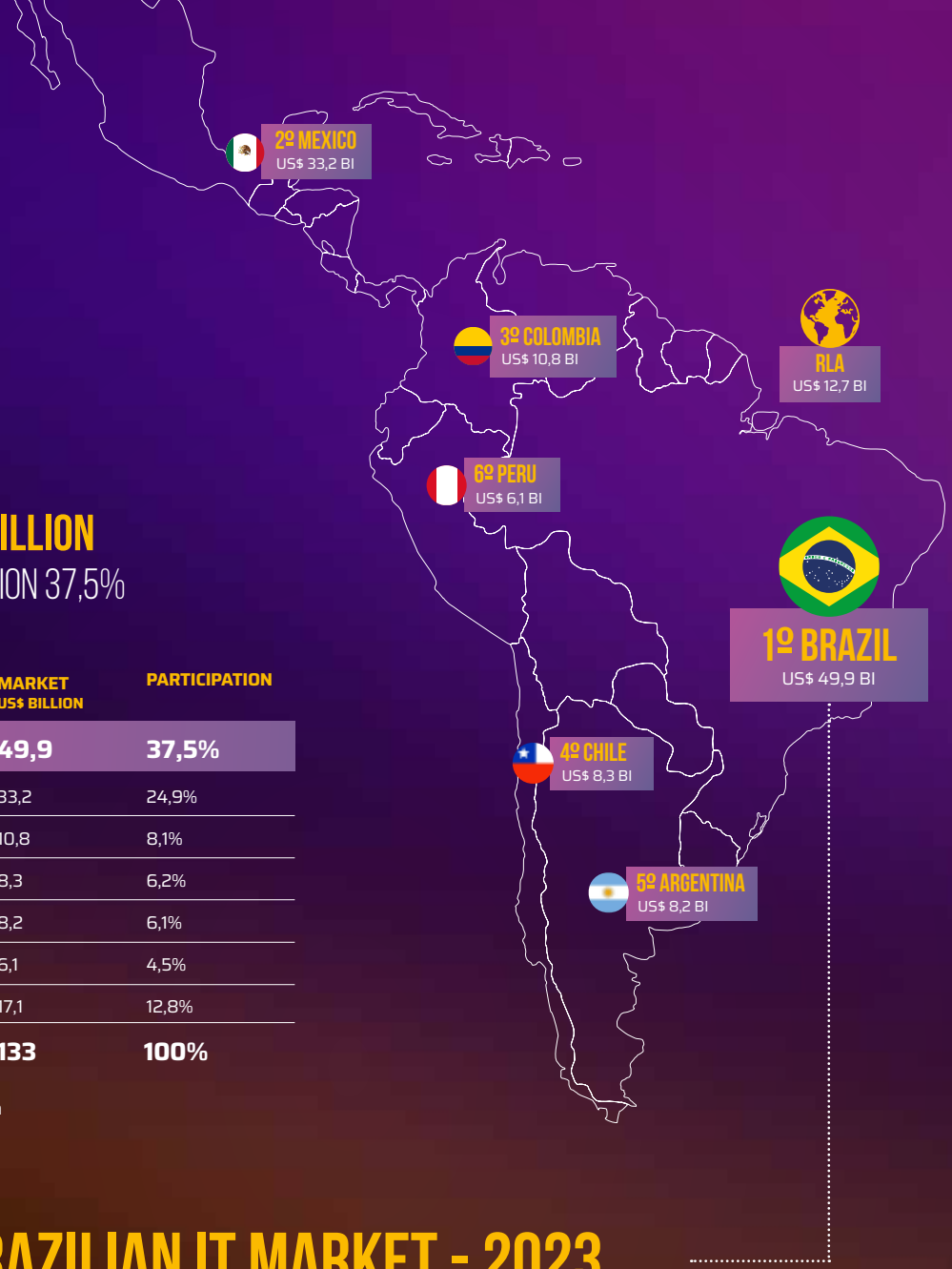
LATAM IT MARKET 2023

TOTAL - US$ 133 BILLION

BRAZILIAN PARTICIPATION 37,5%

POSITION	COUNTRY	MARKET US$ BILLION	PARTICIPATION
1ª	**Brazil**	**49,9**	**37,5%**
2ª	Mexico	33,2	24,9%
3ª	Colombia	10,8	8,1%
4ª	Chile	8,3	6,2%
5ª	Argentina	8,2	6,1%
6ª	Peru	6,1	4,5%
7ª	RLA	17,1	12,8%
TOTAL		**133**	**100%**

The values refer to domestic markets of each country, not considering the export amounts



BRAZILIAN IT MARKET - 2023

TOTAL ICT MARKET IN BRAZIL - 2023 US$ Million

MARKET SEGMENTATION	DOMESTIC MARKET	EXPORT MARKET	TOTAL MARKET
Software	15.035	225	15.260
Services	11.019	584	11.603
Hardware	23.900	-	23.900
IT SUBTOTAL	**49.954**	**809**	**50.763**
Telecom	29.000	-	29.000
ICT TOTAL	**78.954**	**809**	**79.763**

BRAZILIAN IT MARKET - 2023 US$ Million

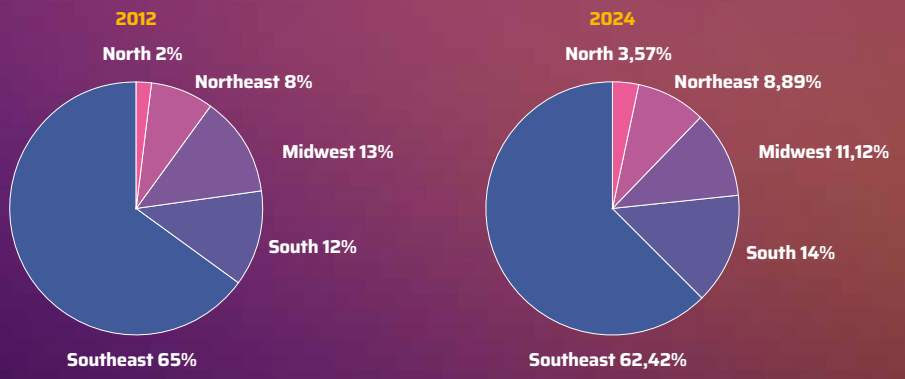
MARKET SEGMENTATION	MARKET US$ MILLION	PARTICIPATION
Software	15.035	30,1%
Services	11.019	22,1%
Hardware	23.900	47,8%
TOTAL	**49.954**	**100%**

The values refer to domestic market, not considering the export amounts

REGIONAL DISTRIBUTION OF IT DOMESTIC MARKET - 2023 %

REGION	SOFTWARE	SERVICES	HARDWARE	TOTAL IT
North	3,10	3,50	3,90	3,57
Northeast	7,80	8,20	9,90	8,89
Midwest	11,50	12,40	10,30	11,12
South	13,70	14,40	14,00	14,00
Southeast	63,90	61,50	61,90	62,42
TOTAL	**100%**	**100%**	**100%**	**100%**

EVOLUTION OF THE REGIONAL DISTRIBUTION OF IT DOMESTIC MARKET %



SOFTWARE AND SERVICES WORLD MARKET - 2023 US$ BILLION

The global Software and Services market reached the value of US$ 1,800 billion in 2023, and Brazil recovered three positions appearing in the 11th position in the world ranking, with a domestic market of approximately US$ 26,1 billion.

COUNTRY	MARKET US$ BILLION	PARTICIPATION
USA	874,6	48,6%
United Kingdom	102,5	5,7%
Germany	93,8	5,2%
PRC	86,1	4,8%
Japan	79,1	4,4%
France	66,5	3,7%
Canada	44,3	2,5%
Australia	34,9	1,9%
Netherlands	29,2	1,6%
Italy	28,1	1,6%
Brazil	**26,1**	**1,5%**
India	23,8	1,3%
Switzerland	23,8	1,3%
Spain	23,1	1,3%
Sweden	16,2	0,9%
South Korea	14,9	0,8%
Mexico	14,5	0,8%
Singapore	13,4	0,7%
Denmark	12,8	0,7%
Belgium	12,2	0,7%
Finland	11,0	0,6%
ROW	169,1	9,4%
Total	**1.800**	**100%**

The values refer to domestic markets of each country, not considering the export amounts

3 MAIN BRAZILIAN SOFTWARE AND SERVICES MARKET INDICATORS 2023

SOFTWARE AND SERVICES TOTAL BRAZILIAN MARKET US$ Million

Exports Included

SOFTWARE US$ 15.260 **56,8%**

24,8%	73,7%	1,5%
US$ 3.789 Domestic Development	**US$ 11.245** Foreign Development	**US$ 225** Export Market

SERVICES US$ 11.603 **43,2%**

83%	11,2%	0,7%	5,1%
US$ 9.632 Domestic Development	**US$ 1.300** Taylor Made Software	**US$ 7** Foreign Development	**US$ 584** Exportação Export Market

SOFTWARE AND SERVICES TOTAL MARKET
US$ 26.863

BRAZILIAN SOFTWARE AND SERVICES MARKET DISTRIBUTION BY STATE - 2023 US$ Million

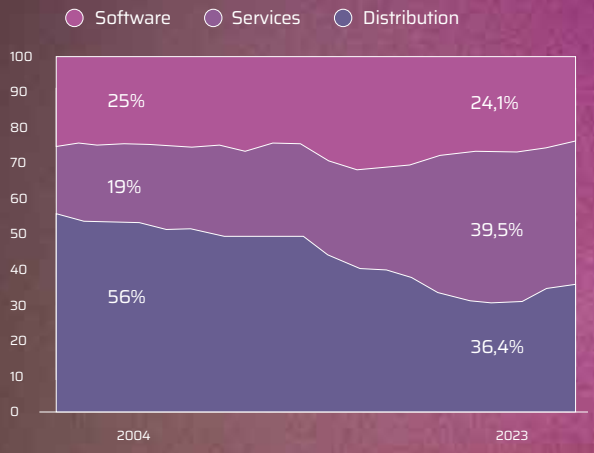
		SOFTWARE TOTAL		SERVICES TOTAL	
REGION	STATE	US$M	SHARE	US$M	SHARE
North	Acre	18	0,12%	16	0,15%
	Amapá	78	0,52%	17	0,16%
	Amazonas	90	0,60%	79	0,72%
	Pará	179	1,19%	111	1,01%
	Rondônia	38	0,25%	27	0,25%
	Roraima	15	0,10%	15	0,13%
	Tocantins	128	0,85%	43	0,39%
TOTAL		**556**	**3,70%**	**309**	**2,78%**
Northeast	Alagoas	60	0,40%	36	0,33%
	Bahia	281	1,87%	214	1,94%
	Ceará	253	1,68%	123	1,12%
	Maranhão	98	0,65%	81	0,73%
	Paraíba	78	0,52%	64	0,59%
	Pernambuco	198	1,32%	144	1,31%
	Piauí	62	0,41%	33	0,30%
	Rio Grande do Norte	108	0,72%	52	0,47%
	Sergipe	66	0,44%	66	0,60%
TOTAL		**1.204**	**8,01%**	**813**	**7,38%**
Midwest	Distrito Federal	1.195	7,95%	631	5,73%
	Góias	394	2,62%	332	3,01%
	Mato Grosso	119	0,79%	119	1,81%
	Mato Grosso do Sul	209	1,39%	262	2,38%
TOTAL		**1.917**	**12,75%**	**1.424**	**12,92%**
South	Paraná	911	6,06%	574	5,21%
	Rio Grande do Sul	902	6,00%	566	5,14%
	Santa Catarina	420	2,79%	441	4,00%
TOTAL		**2.233**	**14,85%**	**1.581**	**14,35%**
Southeast	Espírito Santo	275	1,83%	333	3,02%
	Minas Gerais	1.265	8,41%	1.268	11,51%
	Rio de Janeiro	1.490	9,91%	1.372	12,45%
	São Paulo	5.395	35,88%	3.919	35,57%
TOTAL		**9.125**	**60,69%**	**6.892**	**62,55%**
GRAND TOTAL		**15.035**	**100%**	**11.019**	**100%**

The values refer to domestic markets of each state, not considering the export amounts

COMPANIES FROM THE SOFTWARE AND SERVICES SECTOR - 2023

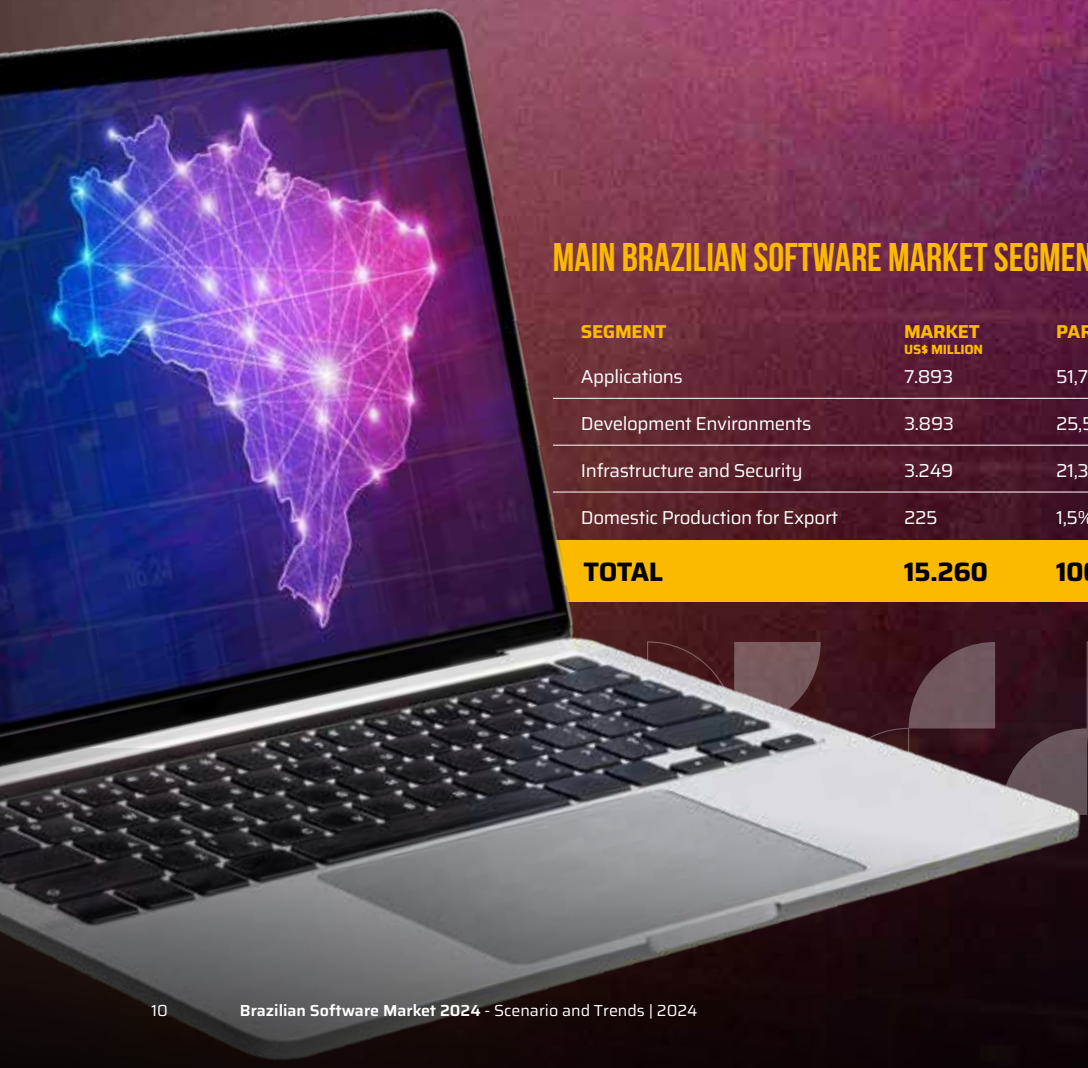
COMPANY	QUANTITY	PARTICIPATION
Development and Production	9.062	24,1%
Distribution and Marketing	13.684	36,4%
Services	14.856	39,5%
TOTAL	**37.602**	**100%**

EVOLUTION OF SOFTWARE AND SERVICES COMPANIES (2004 TO 2023)



Considering only the 9,062 companies that are dedicated to Software Development and Production, we have the following division by size:

COMPANY	QUANTITY	PARTICIPATION
Micro Company *(< 10 employes)*	4.268	47,1%
Small Company *(10 - 99 employes)*	4.107	45,3%
Medium Company *(100 - 500 employes)*	405	4,5%
Big Company *(> 500 employes)*	282	3,1%
TOTAL	**9.062**	**100%**



MAIN BRAZILIAN SOFTWARE MARKET SEGMENTATION

SEGMENT	MARKET US$ MILLION	PARTICIPATION	2023/2022
Applications	7.893	51,7%	35,8%
Development Environments	3.893	25,5%	21,2%
Infrastructure and Security	3.249	21,3%	22,7%
Domestic Production for Export	225	1,5%	17,1%
TOTAL	**15.260**	**100%**	**28,6%**

MAIN BRAZILIAN SERVICES MARKET SEGMENTATION

SEGMENT	MARKET US$ MILLION	PARTICIPATION	2023/2022
Outsourcing	5.110	44,0%	24,6%
Support Services	1.953	16,8%	23,0%
System Integration	1.430	12,3%	18,2%
Taylor Made Software	1.300	11,2%	36,4%
Consultancy & Planning	994	8,6%	17,6%
Domestic Production for Export	584	5,0%	17,5%
Training	145	1,3%	16,0%
Foreign Service Development	87	0,8%	12,9%
TOTAL	**11.603**	**100%**	**23,5%**

MAIN SOFTWARE AND SERVICES DOMESTIC USER SEGMENTATION

SEGMENT	MARKET US$ MILLION	PARTICIPATION	2023/2022
Services and Telecom	6.750	25,9%	26,6%
Finances	6.672	25,6%	26,5%
Industry	4.950	18,9%	26,7%
Retail	2.530	9,7%	27,3%
Public Sector	1.743	6,6%	26,3%
Oil and Gas	969	3,7%	26,7%
Agricultural Industry	485	1,9%	26,9%
Other	1.955	7,5%	27,1%
TOTAL	**26.054**	**100%**	**26,7%**

SOFTAWARE SEGMENTATION BY USER PLATFORM

USER PLATFORM	MARKET US$ MILLION	PARTICIPATION
High-Mainframes, AS390, AS340	1.052	7,0%
Low-Desktops, Laptops	13.983	93,0%
TOTAL	**15.035**	**100%**

This table considers only the figures for domestic production and foreign development software.

The methodology used to compose the division of values was as follows:

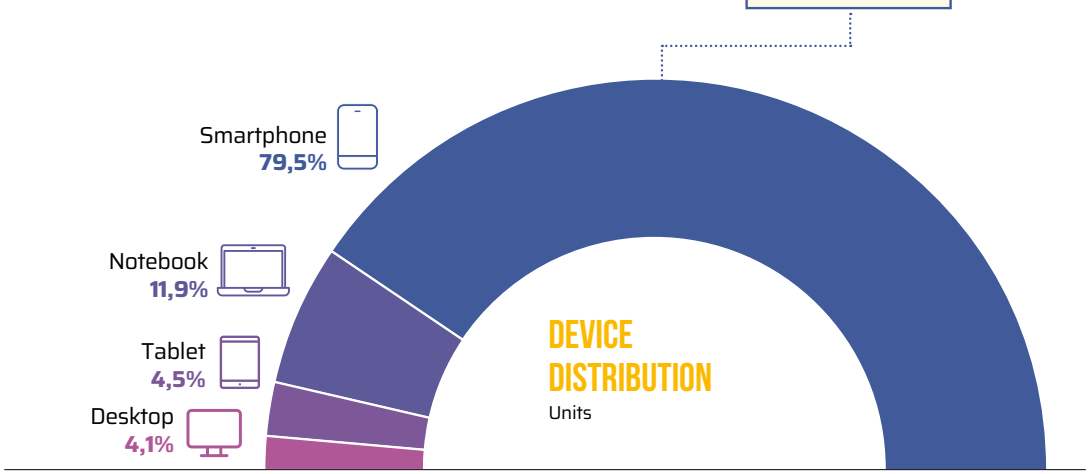
- Low platform: includes Linux, Unix and Windows (considering desktops and laptops as a low platform).
- High platform: includes i5 / OS and Others (considering mainframes as high platform).

4 BRAZILIAN GENERAL IT SCENARIO 2023

EQUIPMENTS AND MOBILITY

BRAZILIAN MARKET OF DEVICES Units

EQUIPMENT	2020	2021	2022	2023	2023/2022
Desktop	1.309.954	1.724.966	2.068.392	1.973.164	- 4,6%
Notebook	4.885.925	7.012.541	6.532.770	5.748.856	- 11,9%
Tablet	2.942.690	3.596.410	2.777.721	2.162.632	- 22,1%
Smartphone	46.176.185	43.421.771	40.681.302	38.322.592	- 5,8%
TOTAL	**55.314.754**	**55.755.688**	**52.060.185**	**48.207.244**	**- 7,4%**

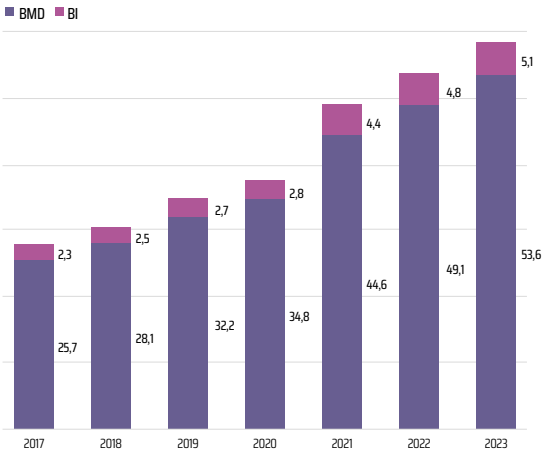


ACTIVE DATA CONNECTIONS IN BRAZIL Million of Units

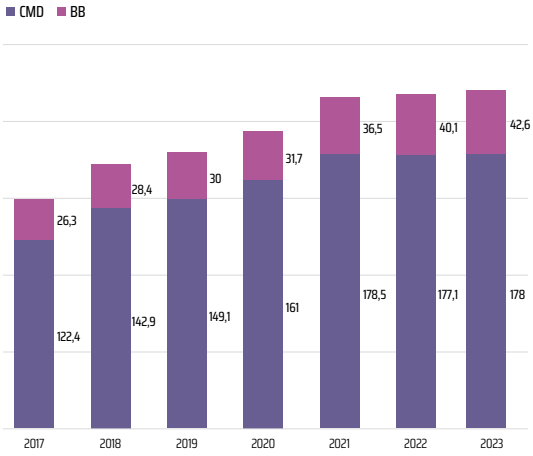
PRODUCT CATEGORY	2020	2021	2022	2023	2023/2022
BMD-Business Mobile Data	34,8	44,6	49,1	53,6	9,1%
BI-Business Internet	2,8	4,4	4,8	5,1	6,3%
CMD-Consumer Mobile Data	161,0	178,5	177,1	178,0	0,5%
BB-Broadband	31,7	36,5	40,1	42,6	6,2%
TOTAL	**230,3**	**259,6**	**271,1**	**279,3**	**3,0%**

BMD: Business Mobile Data
BI: Business Internet
CMD: Consumer Mobile Data
BB: Broadband

BUSINESS Million of Units

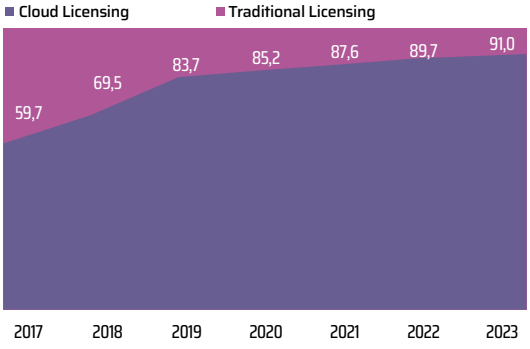


END USER Million of Units



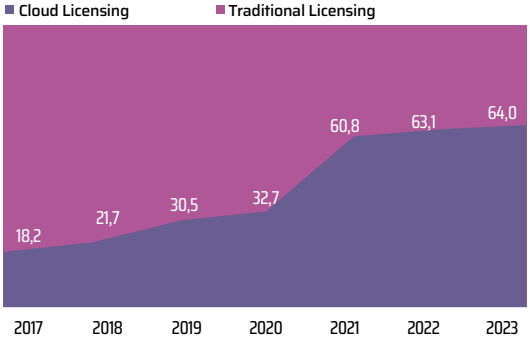
MAIN LICENSING MODELS EVOLUTION

COLABORATIVE APPLICATIONS % Utilization



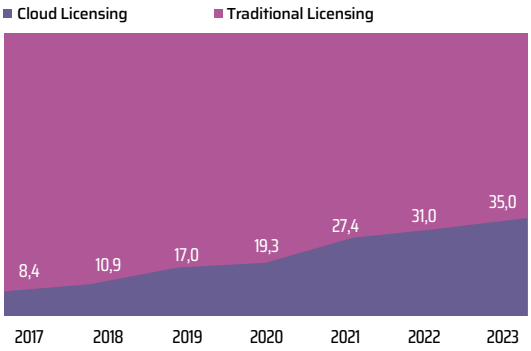
Collaborative applications allow groups of people to work together by sharing information and processes. Comprised of the following functional markets: Email Applications, team Collaborative Applications, Conferencing Applications, Enterprise Social Networks and File Synchronization and Sharing Software.

CONTENT APPLICATIONS % Utilization



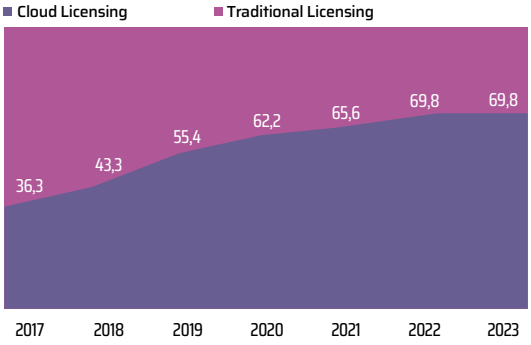
Content applications include content management software; creating and publishing software; artificial/ cognitive intelligence systems, content analysis and discovery software; eDiscovery software; and corporate portals.

ERM APPLICATIONS % Utilization



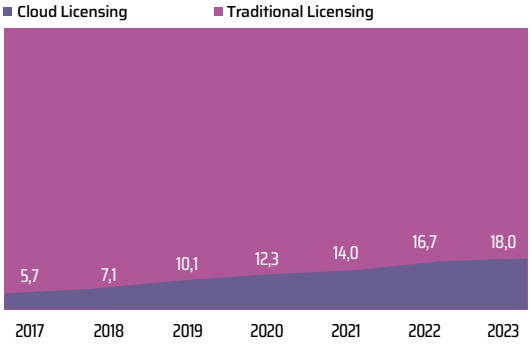
ERM applications are designed to automate and optimize business processes related to resources needed to meet business or organizational objectives. Capabilities include automated processes, finance, capital, materials, suppliers, projects, contracts, orders, and facilities. The market has software that is specific to certain industries, as well as software that can handle specific industry requirements.

CRM APPLICATIONS % Utilization



CRM applications are for automating customer business processes in an organization, regardless of industry specificity (ie sales, marketing, customer service and contact center). Collectively, these applications serve to manage a customer's entire lifecycle - including the process of building a brand, converting a prospect to a customer, retaining a customer - and helping to maintain successful relationships across multiple sales channels. Communication. Communication channels include: (but are not limited to) email, phone, social and web site.

MANUFACTORING APPLICATIONS % Utilization



Manufacturing applications are business solutions for automating and optimizing processes related to planning and executing manufacturing operations services and activities, as well as other back-office activities. Resources include people, capital, materials and facilities. The market has software that is specific to services, manufacturing and other industries.

TRADITIONAL LICENSING

Licenses: include the revenues collected by software licenses at any time, for new installations and licenses for additional options that allow more users or more system resources to be used by the licensed software.

Maintenance: fees charged for the continuous improvement of licensed software for repairing known defects and errors and/or improving and upgrading, as well as for the basic technical support of the licensed software.

Subscription: fees for using software or software-based services and to receive software maintenance and support for a limited period.

CLOUD

Public Cloud: service composition and delivery model for a utility computing environment where independent customers share common software hosted and managed by one Independent Software Vendor (ISV).

Managed Dedicated Service: managed service that is also dedicated and based on access to software features, where it is hosted and managed by ISVs.

Other: other software signatures associated with solutions deployed at the location where the software is leased.

BIG DATA AND ANALYTICS

BI AND ANALYTICS SOFTWARE EVOLUTION US$ Million

TECHNOLOGY CATEGORY	2020	2021	2022	2023	2023/2022
Platform	1.030	898	1.051	1.284	22,1%
Application	455	388	435	690	58,6%
TOTAL	**1.485**	**1.286**	**1.486**	**1.974**	**15,5%**

Big Data software is described as a new generation of software and architectures designed to economically extract value from large volumes of a wide variety of data, allowing for high-speed capture, discovery and/or analysis. We define Big Data by the workload parameters of specific use cases, rather than any individual technology. For example, Big Data technology includes not only Hadoop or NoSQL databases, but also relational MPP databases. As long as the technology is applicable to address the Big Data workload scenarios, the software is considered in the Big Data market. The IDC associates three attributes to"data"in a Big Data setting: volume, variety and speed.

Platforms: Platform solutions are aimed to the development and deployment of applications, are tools used mainly by developers to create, test and deploy software, in addition to processing, integrating, governing and analyzing data.

Applications: Software applications include business programs and applications, are codes designed to automate specific sets of business processes in a sector or business function and to create groups or individuals in more productive organizations or to support educational or support data processing on personal activities.

INTERNET OF THINGS (IOT) US$ Million

TECHNOLOGY	2020	2021	2022	2023	2023/2022
Connectivity	603	685	782	895	14,4%
Services	246	278	316	355	12,3%
Software	226	247	271	296	9,2%
TOTAL	**1.075**	**1.210**	**1.369**	**1.546**	**12,9%**

The IoT is an aggregation of endpoints - "things" - that are uniquely identifiable and that communicate through a network without human interaction using some form of automated connectivity, locally or globally. IoT incorporates the attributes of the 3rd Platform and is fast becoming one of the initial accelerators of innovation to leverage IDC's four pillars: Big Data, Cloud, Social and Mobility. IoT contributes to and enriches each of these four pillars:

• Big Data will help in real-time decision making as well as provide the mechanism to power new data sources.

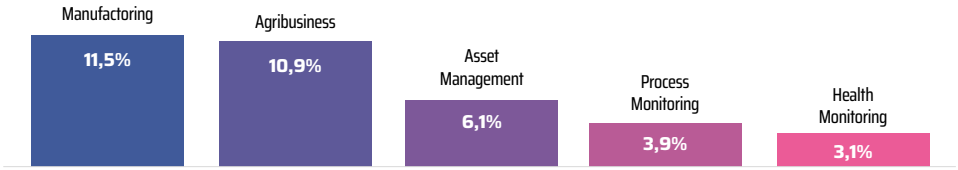
• The Cloud will allow variable workloads from connected endpoints, as well as the scalability and flexibility that is crucial to the expected data deluge of these endpoints.

• Mobility will improve field processes and connect end-points from a variety of (often remote) locations.

• IoT is enabling organizations to reinvent their involvement with customers. It is helping organizations accelerate the speed with which they deliver their products and services, as well as reinvent existing industry processes.

5 MAIN USER CASES

SOFTWARE E SERVICES 2022



5 TRENDS FOR THE SOFTWARE AND SERVICE MARKETS 2024

IDC FORECAST 2024

1 THE ADVANCEMENT OF DATA IN THE CLOUD WILL MAKE COMPANIES RETHINK THEIR DATA STRATEGY AND LOOK FOR NEW SOLUTIONS

The growing use of Cloud and hybrid environments has caused companies to take more and more data to the cloud.

In 2024, the universe of data in the world will exceed 157 ZB, and could double by 2027. Almost 25% of this volume is already in the cloud, which is growing at twice the speed compared to what is not in the Cloud.

However, for this data to become actionable and can be applied to generate intelligence and business value, many companies will accelerate and mature their data strategy.

For 55% of companies, creating products and services, increasing personalization capacity and generating new sources of revenue are strategic themes that depend heavily on the effective use of data.

For this reason, 41% of companies interviewed by IDC highlight that technologies such as AI, GenAI and Analytics are essential to achieving business objectives.

Impact for IT and Business

• To deal with the growing volume of data, investments in cloud solutions for Data Management, Analytics and AI/ML will be increased.

• Integration and interoperability in hybrid and Multicloud environments will be essential to ensure that data is available and can be effectively used.

• Business areas, in turn, expect faster responses and more insights. To do this, they will have to work in partnership with IT to mature the data culture.

Perspectives for the Market

• Cloud data solutions, part of the so-called PaaS, will total US$ 1.5 billion in Brazil in 2024, following its accelerated growth trajectory.

• This advance also moves the IT services market, which will consume around US$ 1.4 billion this year with consultancy, integration and support for data-related projects.

2 THE EVOLUTION OF AI IN SECURITY SOLUTIONS WILL REQUIRE COMPANIES TO BE UP-TO-DATE SO AS NOT TO BECOME TARGETS

IT security, including the protection of hybrid and Cloud environments, is the most important topic when we talk about skills and technologies needed to meet strategic business priorities.

This is not new, given that this has been the #1 item for a few years now in the IDC Latin study America IT Investment Trends. Thinking about 2024, 50% of companies have brought this topic to the top of the agenda.

The exponential advancement of cyber threats has motivated the expansion of the use of AI in security solutions to increase their detection and response capacity, optimizing the work of human experts.

However, the realities of SMB and large companies are very different: while almost 95% of large organizations have solutions with AI capabilities to help with IT security, only 56% of small and medium-sized companies already have these solutions.

Impact for IT and Business

• The increase in attacks targeting the most vulnerable companies will accelerate the search for AI-enabled solutions, especially those delivered from the cloud.

• IT teams will look more heavily to their service partners and manufacturers for support on how to integrate and optimize the use of different products.

• The search for consolidation of solutions and resources, which was one of the mottos for CISOs in 2023, remains firm.

Perspectives for the Market

• The security solutions market will maintain its robust growth trajectory, reaching around US$1.7 billion in Brazil in 2024, which represents growth of more than 16% over the previous year.

• We will see emerging security technologies, more “modern” and “smart”, gaining space in the global market and landing in Brazil, such as Interconnected SaaS Security, Identity Fabrics, among others.

3 TO ENSURE COMPETITIVENESS, COMPANIES WILL REQUIRE MANAGEMENT SOLUTIONS CAPABLE OF ORCHESTRATING AUTOMATION AND DATA

To achieve productivity objectives and increase competitiveness, companies emphasize their interest in the data that is generated in day-to-day operations.

Whether from business processes or interactions with customers and partners, this data almost invariably passes through management solutions – so-called ERPs, in their different functions and scopes.

Globally, companies will be responsible for 2/3 of the data universe in 2024, and productivity solutions (including ERPs) correspond to a 21% share of this total.

This central role of management solutions will make organizations seek capabilities that allow for faster and even automated decisions (supervised or not), to accelerate responses to market demands and dynamism.

AI already has an established role and most enterprise-level solutions rely on this technology. However, this capability, which was aimed at data from the ERP itself, will have to be able to integrate and orchestrate data coming from other sources.

Impact for IT and Business

• Business areas will demand more resources for decision support based on all of their data, and not just on that generated or stored in management systems.

• Expectations about AI's value delivery are also growing. Not only as an "analytical brain", but also with the ability to interpret scenarios and manage knowledge (which has a great fit with GenAI

Perspectives for the Market

• The management solutions market, which considers packages such as ERP, CRM, planning and production and supply chain, will reach US$5.6 billion in 2024 in Brazil, which represents growth of 11.6% over the previous year.

• Of this total, IDC estimates that US$588 million will be associated with the intelligence capabilities embedded in these solutions.

• Analytical and AI platforms will total around US$1.6 billion this year and will have their importance highlighted in an increasingly data- driven scenario.

4 AFTER THE HYPE, IT'S TIME FOR GEN AI TO GENERATE REAL VALUE FOR COMPANIES THAT ARE READY

Companies have known about and used AI for a long time to solve various problems and identify opportunities.

More than 90% of large companies already have some use case that is enabled by AI.

Even SMB companies are already taking advantage of AI, which has been rapidly embedded in business applications .

The current challenge in relation to GenAI lies in stitching together data sources, governance, processes and business objectives to effectively generate value, whether for its internal or external customers.

Many companies still do not have an established data culture, with governance and curation that ensures the reliability and quality of the data to be inserted into GenAI models.

Most organizations still do not have clarity on how to guarantee the security and inviolability of the data used to feed the models. This is the main challenge in moving forward with the application of AI in business, according to 37% of companies interviewed by IDC.

Impact for IT and Business

• Companies will have to worry even more strongly about the quality of their data to continue evolving in the use of AI and GenAI. This will require greater dissemination of a data strategy, which is not limited to the IT audience.

• A GenAI solution is rarely built with just one provider, but with an ecosystem of technologies that will need to be explored by companies to identify the right elements that will transform data and intelligence into concrete actions and processes.

Perspectives for the Market

• Still in the early stages in Brazil, spending on GenAI is expected to more than double in 2024 in the country, helping Latin America approach a total of US$ 120 million related to the technology.

• The need to accelerate projects will generate opportunities for IT service providers and consultancies. It is expected that spending on AI and GenAI- related services exceed US$459 million in 2024.

5 OBSERVABILITY WILL BE THE MAIN OFFERING IN THE MANAGED SERVICES LINE FOR NETWORKS

Organizations have expanded their digital services to establish connections with customers, generate revenue and manage their internal activities.

Managing these architectures becomes increasingly complex.

Identifying performance deviations is even more challenging, making it difficult to map their origin and root causes.

Observability constitutes a strategy to comprehensively manage the performance of digital services from the network. This involves understanding through data collection and analysis, applying analytical models, implementing automation, and integrating with security tools.

This approach needs to be widespread in our market!

Recent research from IDC reveals that, for 60% of companies, observability is associated with management and monitoring. Only 25% indicated data collection and correlation for performance optimization as a feature of the concept.

Impact for IT and Business

• Hyperconnected business environment, transforming network architectures, technologies and management practices will continue to be an imperative.

• Expanding connectivity requirements, management tools and security threats complicate the design, implementation, operation and evolution of network infrastructure.

• Data, automation, integration, predictive posture, and addition of AI will form this robust engine to detect application degradations and anomalies from the network.

Perspectives for the Market

• Globally, while solutions On-Premises for network management will lose share from 2024, the Cloud-Based format accelerates 24.3% year over year until 2027.

• Software products for Application Performance and Network Performance alone are expected to reach US$ 210 million in 2024.

6 PRIVATE MOBILE NETWORKS WILL REACH MORE BUSINESS VERTICALS AND BECOME A REALITY FOR MORE COMPANIES

This modality boosts the offer of connectivity providers that:

• They begin to offer a new service, even more aligned with the needs of organizations, generating new revenue.

• They seek to monetize the investments made in the implementation of 5G technology.

• They aim for long-term contracts with their customers.

At the same time, for companies, the adoption of private mobile networks is attractive because:

• Addresses specific design needs and parameters.

• It can be customized, especially in cases where there are mission-critical communication requirements or IoT deployments, as well as greater control and security.

• It means contracting a new business model, with the characteristics of NaaS (Network as a Service).

Impact for IT and Business

• Education on this topic will be essential. A recent study by IDC revealed that 48% of companies' IT leaders have already been approached on this topic, but only 6% indicated that they have a deep knowledge of private mobile networks.

• Increasing performance, expanding security resources, network management, and reaching connectivity in unserved areas are the main factors behind the adoption of private networks for more than 50% of companies.

Perspectives for the Market

• New deployments of private mobile networks in 2024 are expected to exceed US$220 million in the lines of Wireless infrastructure, professional services and managed services alone.

• The lack of an ecosystem that offers end-to-end solutions is a common criticism from end customers. Making this offer concrete will be a key factor in the massification of these networks.

7 GROWTH OF IOT, AUTOMATED INFRASTRUCTURE AND DATA CLOSE TO THE SOURCE

In 2024, 60% of the more than 157ZB we will reach in the data universe will be concentrated in endpoints and Edge Computing.

For the portion of traffic originating from IoT, this ratio is, naturally, even higher, corresponding to 76% at these layers.

Cloud-focused architectures require highly automated infrastructure capabilities to enable digital business transformation and agility. This automation will involve computing (dedicated, cloud or Edge), storage and networks.

The conjunction of technologies such as W-LAN, SD-WAN, SASE and 5G will address IoT use cases, requiring more available, secure and efficient infrastructure and connectivity.

And security appears as the most important criterion when choosing a service provider for IoT projects for 54% of Brazilian companies.

Impact for IT and Business

• Manufacturers need to collaborate closely with connectivity providers to better meet customer needs.

• There are different types of provision; Thus, offering options will be in line with understanding and solving operational challenges that companies face, providing customized solutions that are also adaptable to future technological advances.

• Helping customers identify viable use cases and presenting real-world case studies will continue to be key. For 5G, for example, the Use Cases are still in their infancy.

Perspectives for the Market

• Recent research indicates that by 2024, 50% of companies will be in the planning or proof-of-concept stages for IoT projects.

• 34% of SMBs Brazilian companies intend to adopt IoT solutions in the next two years in their business activities. For the Government vertical, this number rises to 50%.

• Significant growth is expected in 2024, with the Brazilian market reaching the US$ 1.7 billion mark in hardware, software, services and connectivity.

8 NEW DEMANDS AND NEW BUSINESS MODELS WILL BRING A DISTINCT DYNAMIC TO EDGE TECHNOLOGY SOLUTIONS

The focus on productivity (cited by 46.9% of companies in Brazil) drives process automation – traditional or with AI – which requires more agile information cycles.

Processing data close to where it is being generated for post-processing to hybrid corporate environments generates a demand for greater efficiency in using data.

Complementing LLM Foundation Models with internal information will require training that can be more productive if done locally, in an Edge solution.

Edge solution offerings are advancing in scope and economic viability.

Current Edge solutions are more complete in terms of hardware, software and services, with convenient levels of automation, management simplification and technological updates, in addition to dynamic payment models.

New offerings are constantly being introduced by equipment manufacturers, IT and connectivity service providers, and cloud hyperscalers themselves.

Impact for IT and Business

• Verticals such as oil & gas, manufacturing, mining or others that need more agility or mobility to process prospecting, monitoring and sensing information with IoT, 5G and AI must have a defined strategy for Edge solutions.

• Edge integration with other hybrid and multicloud environments needs to be planned in advance to minimize “inertial” paths that lead to information silos

Perspectives for the Market

• Above and beyond a discussion about CAPEX/OPEX, the priority of transforming IT into dynamic cost is now also reaching the Edge environment, favoring business cases.

• Edge environments composed of hardware, software and services are expected to absorb more than US$4 billion by 2025 in Brazil.

9 THE DEVICES MARKET WILL CONTINUE TO FACE CHALLENGES IN 2024, EVEN AFTER A YEAR OF 2023 OF STRONG SLOWDOWN

Devices (*) market returned to product availability in 2023, but retailers faced serious financial impacts and consumers significantly reduced their shopping appetite.

External influences: Despite wars and impasses in trade disputes between the US and China, there has been no shortage of products or components. However, even with availability, the products became more expensive.

Internal influences: Uncertainties in the retail segment, through which most IT products are sold to consumers in Brazil, affected the market. However, the most relevant factor is linked to the change in people's behavior, who started to update and replace their Devices less frequently.

(*) Devices include Desktops, Notebooks, Tablets, Feature Phones, Smartphones, Multifunctional Printers, Monitors and Wearables.

Impact for IT and Business

• With the change in consumer purchasing habits, we expect stagnation in total B2C sales and a significant volume of illegal products sold in the country.

• Expectations for federal and state purchases in municipal election years, including education.

• Corporate market carrying out purchases and updates of device fleet on a scheduled basis.

Perspectives for the Market

• IDC estimates that the Brazilian Devices market will generate the sum of US$ 17.2 billion in 2024, that is, a drop of 0.3% over the adjusted value of 2023.

• Estimates for some of the Devices segments in 2024:

Smartphones: US$9,8 billion

Computers: US$4,9 billion

Wearables: US$698 million

Printers: US$569 million

Tablets: US$577 million

10 THE ARRIVAL OF AI IN DEVICES WILL STRENGTHEN THE TREND OF UPDATING THE INSTALLED BASE IN THE CORPORATE SEGMENT

AI, much talked about last year, will reach the public with a greater presence on commercial devices in 2024.

• Personal assistants integrated into Notebook keyboards.

• AI better managing battery consumption, which now has greater autonomy.

• AI managing device security attributes, which has failed to keep up with all the investment made in networks, software and cloud in recent years.

Some of the expected benefits:

• Smartphones with AI improving photos.

• AI tablets with longer battery life and more advanced security attributes.

• Notebooks with AI in their processors improving performance, security, autonomy and much more.

• AI printers improve document quality and reduce ink or toner and energy consumption.

• AR/VR with AI should support innovation in some use cases, especially in industrial environments.

Impact for IT and Business

• IDC estimates that devices with embedded AI will drive sales from 2026 onwards; until then, PCs will predominate.

• By the end of 2026, 80% of new PCs for commercial use will include dedicated AI chips that will improve productivity, decrease latency, maintain data security.

• By 2027, one in three new deployments of ruggedized mobile devices will be in service of new AI-powered applications and features designed to increase the productivity of frontline workers.

Perspectives for the Market

• Devices with some type of AI is expected by 2024 . Manufacturers point out that such launches will initially be shipped in Premium products and that, by the end of this year, we will have entry-level products with some of these attributes.

• Premium notebooks (above US$1,500) will represent 6.9% of this Brazilian market.

• Premium smartphones (above US$800) will represent 5.9% of its market in Brazil.

6 METHODOLOGY AND DEFINITIONS

METHODOLOGY

For more than five decades, IDC has been consistently refining its market research methodology, seeking to satisfy the most complex needs of its customers around the world. In Brazil, research was developed based on IDC's methodology, renowned worldwide, which makes the results of market studies fully compatible with regional and global trends. For this project, the methodology for gathering information consisted of:

- Information from IDC Brasil studies related to software, hardware and IT services;
- Official statistical data related to the industry and the consumer market;
- Modeling and adequacy of secondary data according to the study categories;
- Cross-check interviews with Brazilian companies that provide software and related services.

GLOBAL DATA

IDC used the quarterly consolidation of data conducted in 50 offices divided in to six world regions. This data is consolidated in the "Black Book" study that gathers general information on Information Technology in these countries. This information is updated quarterly. The present study is based in data relative to **Q4 – 2023 – from the IDC's Black Book.**

INTERVIEWS WITH DEVELOPERS

IDC interviewed companies that work with software development, producing customized and parameterizable products. These companies are usually classified as local ISVs. In addition, interviews were conducted with companies that export software and services, during the same period in which the local and multinational software suppliers were accessed.

INTERVIEWS WITH SOFTWARE SUPPLIERS

For this project, IDC used information collected from software product suppliers, among which multinationals operating in the Brazilian market. The market sizing data (except for software exports) was obtained from this preliminary survey. The interviews were conducted personally and by phone. The interlocutors are analysts of IDC Brazil.

INTERVIEWS WITH IT USERS

IDC also collected data by interviewing heavy users of information technology.

SEGMENTS NOT SURVEYED

Some segments of the software and services sector were not surveyed in detail for purposes of this report, namely:

- **Embedded Software:** software integrated to equipment constituting a complete hardware solution, suchas telephone central offices, cell phones, industrial automation machinery and equipment, among others.
- **OEM Software:** OEM (Original Equipment Manufacturer) licenses of operating systems for large equipmentwere not considered.
- **Software for Internal Use:** software developed inside the company, for own use and, eventually, distributedto third parties without commercial involvement.
- **Firmware:** programs in basic computer language integrated to the hardware.

DOLLAR EXCHANGE RATE

For the purpose of this study it was adopted the constant exchange rate of R$ 5,169/US$.

DEFINITIONS

REGARDING MARKET SEGMENTATION

Applications: included in this segmentation are applications for consumers, commercial application, industrial applications and specific programs for industrial or business process automation.

Application Development and Deployment Software: Segment known as “middleware”, in which are included programs to manage and define data that will be kept in one or more databases, development tools, BI tools, among others.

Infrastructure Software: is divided into primary categories: software for networks, security software, storage and backup software and operating system software.

Consultancy: Consultancy and advisory services pertaining to Information Technology.

System Integration: Comprises planning, design, implementation and management of IT solutions to meet technical specifications defined by the customer to meet its business needs.

Outsourcing: Activity in which a service provider external to the organization assumes responsibility for the management and operation of all or part of the customer’s IT infrastructure, including networks, communication, maintenance and operation of systems and applications, among others.

Support: Services related to software installation, customization and configuration, as well as technical support services to users.

Training: Process of empowering employees or customers, related to IT development, administration or utilization.

Taylor Made Software: systems developed according to the specifications of a single user and that will meet the needs of that user alone.

Services: are technical services added to the software, such as data entry, data processing, development and maintenance of internet page content, etc.

REGARDING BUYER MARKET SEGMENTATION

Industry: includes all manufacturing companies, whether discrete manufacturing or conversion.

Trade: includes all companies working in trade, retail, or distribution.

Agricultural Industry: includes manufacturing companies of agricultural machinery, composts and fertilizers, plants and cooperatives, trading companies and food processing.

Government: institution directed toward public administration, whether at municipal, state or federal level.

Finances: includes public and private companies, banks, insurance companies, credit cards, value broker and all other financial institutions.

Services: health, transport, education, tourism, entertainment and other services.

Oil & Gas: public and private companies related to the oil, gas and mining sector.

Other: included are organizations from the communication, utilities and domestic market sectors.

OTHER DEFINITIONS

SOA - Service Oriented Architecture
ISO - International Organization for Standardization
ITIL - Information Technology Infrastructure Library
VoIP - Voice over Internet Protocol
OEM - Original Equipment Manufacturer
BPO - Business Process Outsourcing
M&A - Merge and Acquisition
MVNO - Mobile Virtual Network Operators
MDM - Mobile Device Management
LOB - Line of Business
IoT - Internet of Things
SaaS - Software as a Service
PaaS - Platform as a Service
DaaS - Device as a Service
AI - Artificial Intelligence
SDWAN - Software Defined Wide Area Network
SMB - Small and Medium Bussiness
LLM - Large Language Models

PROFILE OF ASSOCIATED COMPANIES

+/- 2 k
Associated Companies*

R$ 107 bi
in 2023

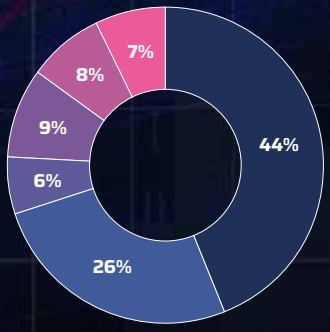
260 k
direct Jobs

76%
of MSC

24
States and FD

*600 partner companies from ACATE

ANNUAL REVENUE



Approximately 76% of the associated companies can be considered as Micro or Small Companies, with revenues up to R$ 3.6 million per year.

ABES associação brasileira das empresas de software

Brasil mais digital
e menos desigual

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