



# MAPPING NEW SKILLS IN THE STATE OF SÃO PAULO

EXECUTIVE SUMMARY

Developed by



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## EXECUTIVE SUMMARY

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The state of São Paulo is a key player in the Brazilian economy, being the leading state in terms of both population and employment. Heavily hit by the current economic downturn, the state has also registered the most severe losses in terms of job posts destruction (nearly 30% of the overall job posts destruction in Brazil happened in São Paulo), when compared to other Brazilian states in absolute terms. All these reasons make São Paulo a key player in fostering the national economy's recovery.



### Highlights:

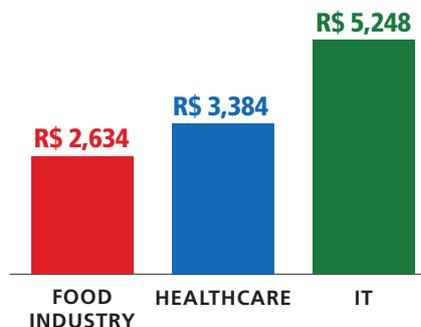
- São Paulo is the largest economy among all 27 Brazilian states, accounting in 2014 for approximately 32% of the country's GDP (IBGE)
- 44,749,699 people lived in São Paulo in 2016 (IBGE)
- Unemployment in the state of São Paulo reached 12.4% by the end of 2016 (IBGE)

Our study aims to investigate skills gaps and mismatches in the state of São Paulo in order to identify the most prominent workforce needs to promote productivity gains and economic growth. Skills gaps are the difference between the skills required for a given job post and those held by the workforce, while mismatches are characterized by an inadequate match between the job position and the worker in terms of skills requirements. The present analysis focuses on the Healthcare, Information Technology Services and Food Industry sectors, which have been identified as the leading economic drivers in the state of São Paulo in the near future. These sectors were identified taking into account the following dimensions: i) recent performance of measures reflecting economic activity; ii) perception of relevant actors of the economy and iii) investment forecasts for the state of São Paulo.

### Leading Economic Drivers likely to help the state recover from the crisis



### Average Monthly Wage per Sector



Source: PNAD Continua, 2016. Highlights

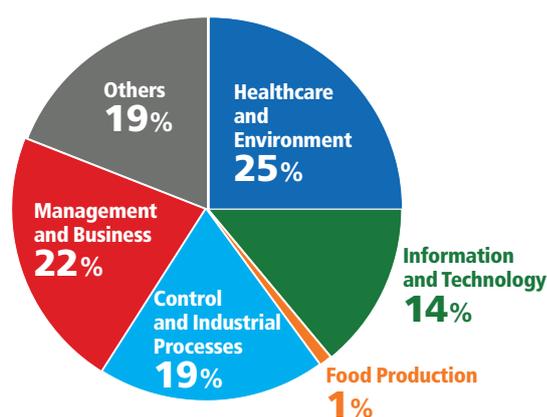
## Examples of Occupations in the key sectors

OCCUPATION	WAGE
<b>Food Industry</b>	
Packaging and Filling Machine Operators	R\$ 904
Logging equipment operators	R\$ 1,940
<b>Healthcare</b>	
Licensed Nurses	R\$ 1,815
Radiologic Technicians	R\$ 2,222
<b>Information Technology</b>	
Computer systems analysts	R\$ 1,760
Computer programmers	R\$ 2,082

Source: RAIS, 2014.

These three sectors are also relevant in terms of technical level training in the state of São Paulo, accounting together for 40% of total enrollments, as displayed in the figure below.

## Technical Courses Enrollment in São Paulo



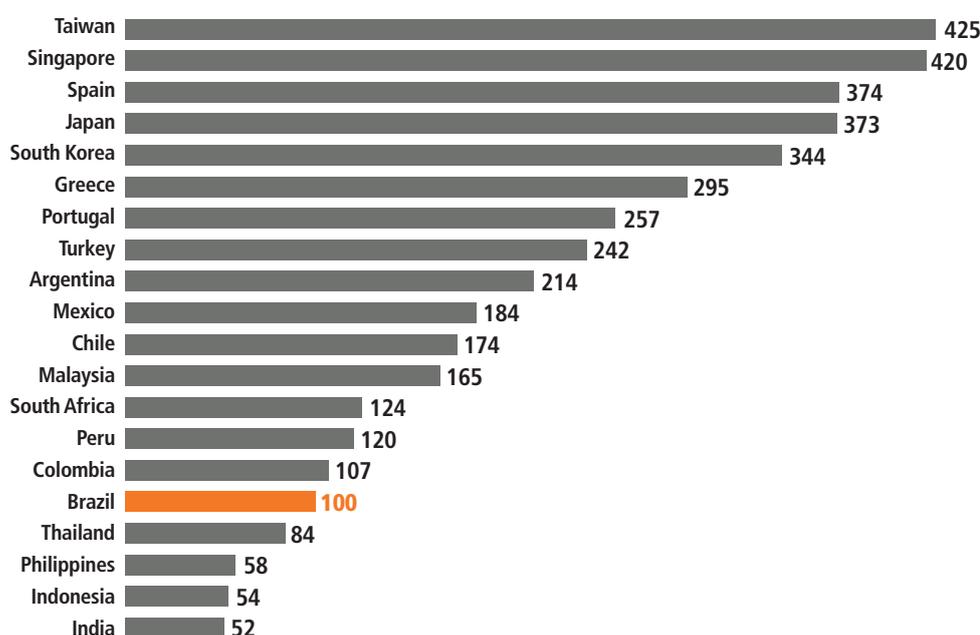
Source: INEP/Censo Escolar, 2014.

The findings and recommendations that follow are driven from quantitative data analysis—a survey carried out with a representative sample of 417 companies and secondary data analysis related to the skills providers' side—and qualitative surveys carried out with representatives from the aforementioned sectors and skills training ecosystem.

## KEY FINDINGS

Our findings reveal that, overall, the technical-level workforce entering the labor market is not fully ready to perform the tasks demanded by the productive sector, with a large share of the companies surveyed declaring they face challenges to fill out existing positions due to the lack of appropriate skills. This finding suggests that closing the workforce skills gaps may enhance the employability of workers, and also contribute for an increase in the productivity per worker, which positively impacts the overall productivity of the economy.

## Labor Productivity Brazil and selected countries: 2011



Source: Penn World Tables, 2011.

In Brazil, where labor productivity is lower than many other South American countries (such as Colombia, Peru, Chile and Argentina, as displayed above), there is an urgency to promote productivity gains in order to ensure long-term economic growth alongside social inclusion. Improving workers' human capital and enhancing the quality of the match between job posts and the workforce is key for fostering growth and helping in the economic downturn recovery process.

Our study finds that, although each sector presents particular needs in terms of skills, investing in the development of workforce socio-emotional skills is important to enhance the human capital and employability of workers in all sectors. Socio-emotional skills are those such as perseverance, responsibility and cooperation. They are at least as important as cognitive skills in predicting individuals' performance in different areas, such as academic achievement, labor market and health outcomes.<sup>1</sup>

An additional result of this study is the finding that a closer connection between schools and the industry is recommended to enable an adaptation of course curricula to better suit the needs of the labor market.

Vocational education and training is progressively gaining importance in the Brazilian context. Although the share of students following vocational training is still low, it displays a growing trend, having increased sharply in the past years.<sup>2</sup> In 2007, 95.2% of the Brazilian secondary students were enrolled in general education, and 4.8% of them were enrolled in vocational education; in 2015, the percentage of students enrolled in vocational education (concomitant and integrated modalities)

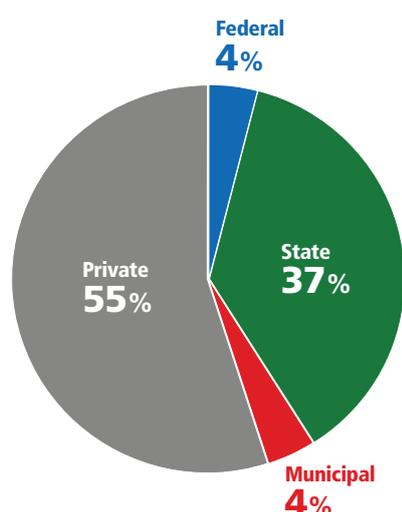
1 Santos, Daniel, and Primi, Ricardo (2014). Desenvolvimento socioemocional e aprendizado escolar: uma proposta de mensuração para apoiar políticas públicas. Relatório sobre resultados preliminares do projeto de medição de competências socioemocionais no Rio de Janeiro. São Paulo: OCDE, SEEDUC, Instituto Ayrton Senna. Carneiro, Pedro and Vignoles, Anna and Dearden, Lorraine (2010) The economics of vocational education and training. In: International Encyclopedia of Education (Third Edition). Elsevier, Oxford, pp. 255-261.

2 "Vocational Education and Training in Brazil: Knowledge Sharing Forum on Development Experiences: Comparative Experiences of Korea and Latin America and the Caribbean." IADB, 2015.

increased to 8.7%. However, these figures are still far away from those in similar Latin American countries. The ratio of young students enrolled in vocational education in Colombia and Mexico is 28% and 38%, respectively. In comparison to selected developed countries, this difference is even more pronounced: the share of students enrolled on vocational education in Italy is 56%, in Austria, 71%, in Switzerland, 62%, and the OECD average is 40%.<sup>3</sup>

This is a favorable moment to discuss these issues in Brazil, as the federal government is in the midst of an educational system reformulation. One of the matters under discussion is the option of having the vocational track to become an alternative to regular education, instead of remaining as demanding additional hours to the compulsory general track. Setting the technical education track as an alternative to the general track, with similar course load, makes vocational training a more viable and attractive option for students. Therefore, this reform has the potential to increase the share of enrollments in the vocational track, making this the opportune moment to discuss skills formation, curricula and the connection between skills suppliers and the productive sector.

### Share of schools offering technical training in São Paulo—by type of provider



Source: INEP/Censo Escolar, 2014.

### Profile of Workers by Sector

SECTOR	% FEMALE	AGE (AVERAGE)	% HIGHEST EDUCATION: HIGH SCHOOL	% HIGHEST EDUCATION: UNIVERSITY GRADUATES
Food Industry	34%	38	67%	19%
Information Technology	22%	36	98%	66%
Healthcare	76%	40	89%	47%

Source: PNAD Continua (IBGE)

<sup>3</sup> OECD (2007), Education at a Glance 2007: OECD Indicators and OECD (2016), Education at a Glance 2016: OECD Indicators, OECD Publishing, Paris.

The government is a very prominent player in supplying vocational training, so this reform is likely to have a substantial impact in the overall training of the Brazilian workforce. In the state of São Paulo, as illustrated in the figure below, public schools (federal, state and municipal providers) account for 45% of the total of 1,125 schools.

## OVERALL FINDINGS

- There is no public data available on market demand for skills per occupation. Skills providers obtain that information only through direct contact with the companies.
- Companies overall identify a need for the development of worker's skills in São Paulo's technical-level workforce, as 85% of the companies surveyed regularly revise the skills needs of their employees. The larger the size of the company, the more they revise their skills needs.

### Responses of companies to the question "Does the company regularly review the skills needs of their employees?"

	COMPANY SIZE				TOTAL
	MICRO	SMALL	MEDIUM	BIG	
Yes	67%	82%	87%	90%	85%
No	33%	18%	13%	10%	15%
Total	100%	100%	100%	100%	100%
<b>Number of companies</b>	<b>30</b>	<b>109</b>	<b>120</b>	<b>150</b>	<b>409</b>

Authors' elaboration based on New Skills at Work Survey performed by the IBRE/FGV.

- Around 40% of all companies in our sample face challenges in hiring technical-level professionals specifically due to the lack of appropriate skills.

### Workforce training

	OVERALL	FOOD INDUSTRY	IT	HEALTHCARE
	%	%	%	%
Performs only internal training	17	43	9	3
Performs only external training	2	1	4	0
Just recruit previously qualified	8	2	9	12
Performs internal and external training	4	10	3	1
Performs internal training and recruit previously qualified	40	33	30	54
Performs external training and recruit previously qualified	3	0	7	3
Performs internal and external training and recruit previously qualified	26	12	38	27
Total	100	100	100	100
<b>Number of companies</b>	<b>378</b>	<b>113</b>	<b>129</b>	<b>136</b>

Source: Authors' elaboration based on New Skills at Work Survey performed by the IBRE / FGV.

- There is a difficulty among the three sectors surveyed in finding adequate qualification courses in the market. From the table below, we see that 35% of the companies depend on external suppliers to train their workforce. Among those, 33% declare challenges in finding suitable training courses.
- Schooling requirements vary substantially among the three sectors and company sizes. Larger companies are more likely to demand and hire technical-level employees.

Required education level	OVERALL	FOOD INDUSTRY	IT	HEALTHCARE
	%	%	%	%
None	6.4	19.8	0.7	0.0
Elementary School	9.1	29.4	0.0	0.0
High School	30.9	47.6	16.2	30.1
Technical Education	33.8	3.2	25.0	69.2
Technical Higher Education	19.8	0.0	58.1	0.7
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
<b>Number of companies</b>	<b>405</b>	<b>126</b>	<b>136</b>	<b>143</b>

Source: Authors' elaboration based on New Skills at Work Survey performed by the IBRE / FGV.

- Among the three sectors surveyed, the food industry is the one with the greatest potential to absorb less educated individuals going through short-term training, as this sector generally demands workers with lower educational attainment. Despite having more accessible entry-level positions, this does not necessarily mean there are career growth opportunities.

## SPECIFIC FINDINGS

### Food Industry

- The food industry hires few technical-level professionals, mostly sticking to high school graduates.
- Tasks are not complex, so the sector tends to hire low-skilled and low-income individuals.
- Companies train employees on the specific skills necessary to perform the jobs.
- Individuals mainly lack socio-emotional skills.
- Packaging and filling machine operators, packers and packagers, as well as food batchmakers are the technical-level occupations that most employers look at hiring in 2017.

### Healthcare

- The healthcare sector largely employs technical-level employees, mainly due to legal requirements.
- The profession of nursing assistant will no longer be officially recognized, which will likely create the need for individuals in this position to look for additional training.
- The findings from the qualitative survey suggest there is no shortage of supply of professionals in the labor market.
- The workforce mainly lacks practical skills (when worker detains sufficient

technical knowledge but lacks practice in performing the activity), but is also short of socio-emotional ones.

- Clinical pathology technicians, licensed nurses and dental assistants are the technical-level occupations that most employers look at hiring in 2017.

### Information Technology Services

- The IT Services sector largely employs university-level graduates, even for technical-level occupations.
- Technical-level individuals mainly lack technical skills, which hinders the capacity of employers to hire them for technical-level positions.
- Computer programmers, telemarketers and computer systems analysts are the technical-level occupations that most employers look at hiring in 2017.

## KEY RECOMMENDATIONS

### OVERALL RECOMMENDATIONS

- The government should build a more enabling environment to improve the overall connection between skills providers and the productive sector in order to reform course curricula, adapting them to the market's skills needs, as this is key for increasing the productivity of the national economy as a whole. The current practices identified from the providers' perspective to connect with the productive sector are isolated initiatives, and do not seem widely institutionalized with clearly determined procedures. Fostering an enabling environment for the development of a national system publicly available with complete data on market needs would be beneficial to reduce skills gaps and mismatches. This would involve working together with both the industry and the schools to agree on the best strategy to promote this connection. Improving the flow of information between skills providers and the productive sector may work at the state level as the educational system reformulation will mainly affect states.
- One strategy to be explored is that the government, with the support of other relevant stakeholders, invests in the development of an online system or platform to serve as a dynamic public repository of information on market needs, both in terms of occupations and skills. The same platform could host updated information on all schools offering technical courses for each occupation.
- The different industries and schools should commit to participate in the government's initiative of establishing this system, uploading up to date information on a regular basis.
- The productive sector should take an active role in the training of the workforce through two different initiatives: i) sharing regularly with schools the review they currently undertake about skills needs and ii) offering internships and on the job training opportunities for students. Both should have a positive impact on job matching, improving labor productivity across sectors and having an impact on wages, economic growth and overall welfare.
- The government, with the support of the third sector, should develop a socio-emotional module, to be included in the core curriculum of all sectors, in order to improve the behavioral skills and attitudes of technical-level individuals entering the labor market. Core socio-emotional skills identified across sectors to be improved are discipline, professional attitude and responsibility. Best practices may be adapted from international experiences.

## SPECIFIC RECOMMENDATIONS

### Food Industry

- The lack of socio-emotional skills is the main gap that needs to be addressed to improve the quality of the workforce employed in the food industry. Relevant stakeholders should invest in the development of different strategies for the improvement of behavioral skills for low-skilled individuals, since this will likely achieve not only productivity gains, but also welfare improvements for the low-income population. Different approaches may be adapted from international best practices and ideally made publicly available to be adopted by companies.
- Given individuals usually do not enroll in technical schools to prepare for jobs in this industry, offering a socio-emotional module as part of the technical course curriculum only would not solve the problem. Companies should explore the possibility of offering specific—internal or external - training to their employees focused on the development of behavioral skills.
- From the government perspective, it would be interesting to explore the possibility of including a socio-emotional module as part of the general education, as these are relevant skills that increase workers' performance across all sectors in the labor market.

### Healthcare

- To face the challenge of the lack of practical skills among the healthcare sector workforce, schools should revisit the course curricula, increasing the number and the quality of on-the-job training hours.
- Companies should engage and take on active roles in the development of the workforce's education, expanding the internship opportunities and on the job training hours.

### Information Technology Services

- Skills providers should revisit course curricula, focusing on further developing technical skills. Schools must seek a closer interaction with companies in order to jointly develop and update the appropriate course curricula to make IT vocational courses' graduates more attractive to the labor market. This would enhance the technical quality of the students graduating from vocational courses, enabling them to obtain the technical level occupations, currently being taken by university graduates. Including an elective internship module in the curricula could increase the contact between the industry and the students, potentially increasing their employability.
- From the industry's perspective, hiring university graduates for technical level education is not optimum, so companies should collaborate with technical-level schools in order to have a more qualified and suitable technical level workforce supply to meet their needs. For this purpose, companies could work jointly with technical schools in the development of the curricula and also in offering internship opportunities.

