

Scoring Brazil

Innovation and
competitiveness in an
international context

A report from the Economist Intelligence Unit



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Contents

	About the research	2
1	Introduction: Brazil takes off?	3
2	Ongoing constraints: the usual suspects	5
3	The human element: spreading the learning	6
4	Digital is a powerful bright spot in an otherwise lagging physical infrastructure	8
5	R&D expenditure and outcomes: bringing the private sector on board	10
6	Conclusion: Great expectations and much work to do	12



About the research

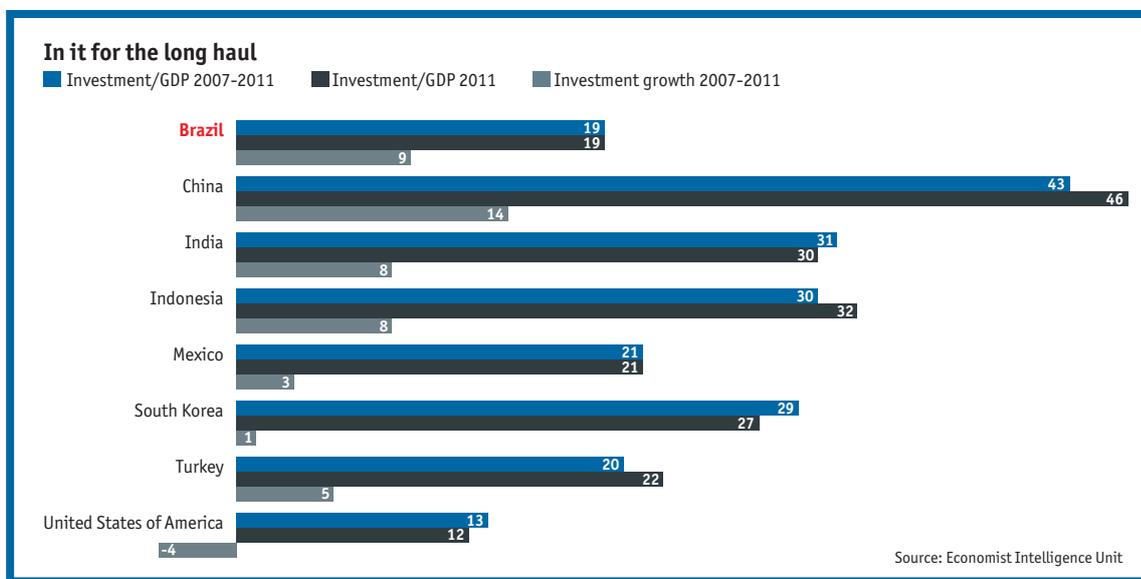
Scoring Brazil: Innovation and competitiveness in an international context is an Economist Intelligence Unit report sponsored by Brasscom and Brasil IT+. The report examines the key drivers of Brazil's competitive and innovative potential within an international framework and includes an examination of current government policies and initiatives. The Economist Intelligence Unit bears sole responsibility for this research. The findings and views expressed in this report do not necessarily reflect those of the sponsor. The report was written by Annabel Symington and Justine Thody. ■

1 Introduction: Brazil takes off?

For countries, as for businesses, an ability to innovate is critical to keeping up with the competition. A large and growing domestic market (Brazil is the world’s fifth-most populous country and the sixth-biggest economy measured in US dollars), a diversified economy, abundant natural resources and a youthful population add up to substantial potential for competitive advantage and innovation. Stable rules of the game are also critical. The adoption by Brazil’s first leftist government in modern times of orthodox economic policies in 2003 virtually eliminated the risk of a major change in policy direction should an opposition party come to power. Policy improvements in the past two decades have further

laid the basis for an increasingly broad-based economic expansion. Brazil’s ability to fend off the worst effects of the massive global shock of 2008-09 is testament to the economy’s greater structural resilience. Businesses’ ability to extend their planning horizons contributes to promoting sustained investment and innovation.

Although access to credit remains far from ample, it is much better than it was a decade ago and sources of finance will grow as Brazil’s financial markets continue to develop. Brazil has one of the deepest and most liquid financial systems among emerging markets and scores highly in the EIU’s Business Environment Rankings for the health and soundness of its banking sector. Part of the



banking system's strength stems from its parsimony in credit expansion. Bit by bit, other sources are emerging as stock, bond and fund-management markets deepen and as the government finances targeted credit initiatives. Yet until enough Brazilians start to build up their savings accounts, the country will continue to suffer from a shortage of domestic investment. Domestic savings rates are below 20% of GDP as are overall investment rates (which include foreign investment). Both need to rise for Brazil to sustain productivity gains and thus improve its competitiveness.

A strong currency is often cited by Brazilian industry as a key constraint on competitiveness. However, although the strength of the Real is usually seen as harmful to struggling manufacturers, its impact on competitiveness is sometimes oversimplified. The incorporation of more advanced technology by the manufacturing sector, which has boosted productivity growth in the past decade, was partly facilitated by exchange-rate appreciation since 2005 (interrupted briefly during the global recession of 2008-09), as it made it less costly for

manufacturers to increase imports of advanced machinery and equipment. Still, in an increasingly competitive global environment, without continuous gains in productivity the strength of the Real will be a concern for industry. Still-high interest rates by international standards, along with strong inflows of investment related to an infrastructure boom and the "pre-sal" oil boom (Brazil is poised to figure among the world's largest oil exporters in the 2020s), will maintain structural upward pressure on the exchange rate (notwithstanding the weakening of the past year, which reflects a rise in global risk aversion). Although inflation control has improved greatly in the past couple of decades, supply-side inefficiencies maintain upward pressure on domestic prices.

Key among these supply-side inefficiencies is a poor-quality physical infrastructure, a scarcity of skilled labour, burdensome red tape, and a complex and onerous tax system. All are aggravated by fiscal imbalances. The government's ability to improve the efficiency of public spending will be critical to ensuring that initiatives under way to tackle these constraints deliver timely results. ■

Business environment rankings

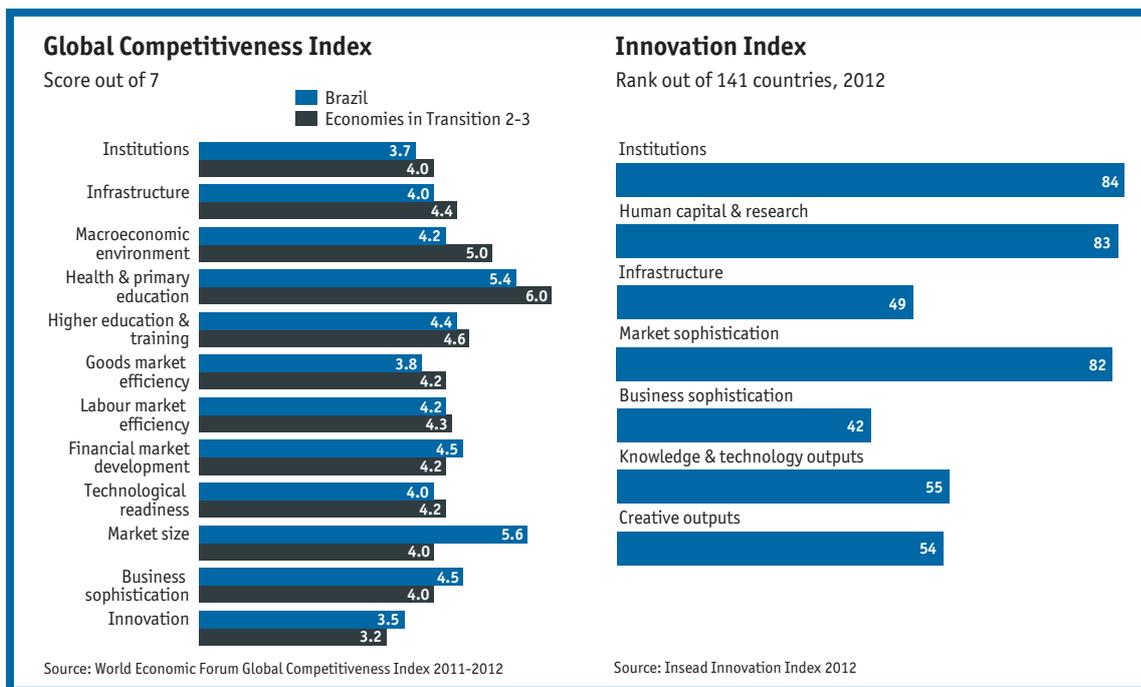
	Value of index ^a		Global rank ^b		Regional rank ^c	
	2007-11	2012-16	2007-11	2012-16	2007-11	2012-16
Overall position	6.51	6.69	39	37	3	3
Political environment	6.2	6.4	40	36	3	3
Political stability	8.1	8.1	18	13	3	1
Political effectiveness	4.5	4.9	53	47	6	5
Macroeconomic environment	7.5	7.2	26	39	5	5
Market opportunities	7.7	7.7	2	6	1	2
Policy towards private enterprise & competition	6.3	6.5	36	35	2	2
Policy towards foreign investment	7.3	7.8	32	27	3	2
Foreign trade & exchange controls	7.3	7.3	50	53	6	7
Taxes	4.7	4.7	76	76	11	10
Financing	7.4	7.4	12	13	2	2
The labour market	5.2	5.6	66	59	10	9
Infrastructure	5.6	6.5	52	52	4	5

a Out of 10. b Out of 82 countries. c Out of 12 countries: Argentina, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Mexico, Peru and Venezuela. Source: Economist Intelligence Unit Business Environment Rankings 2012

2 Ongoing constraints: the usual suspects

These constraints are the same ones that hold Brazil back from a better performance in international rankings of competitiveness. Although Brazil faces many challenges that restrict its performance at a global level, it is a regional leader: it is one of only three economies in Latin America (the others are Chile and Panama) which rank in the top 50 of 144 countries in the World Economic Forum’s annual Global Competitiveness Rankings (GCR), last updated in September 2012. As in the EIU’s business environment index, the quality of Brazil’s financial markets figures as a key

strength in the GCR. Brazil scores reasonably well on capacity for innovation, ranking 31 out of 144 countries. However, the score, arguably, is unfairly limited because the GCR does not contain any indicators specifically related to green technologies, a key competitive and innovative strength for Brazil. Yet, although Insead’s Global Innovation Index 2012 (GII) does include indicators looking at “ecological sustainability”—on which Brazil scores relatively well—its overall position is no better than it is in the GCR, as it ranks 58 out of 141 countries in the GII. ■



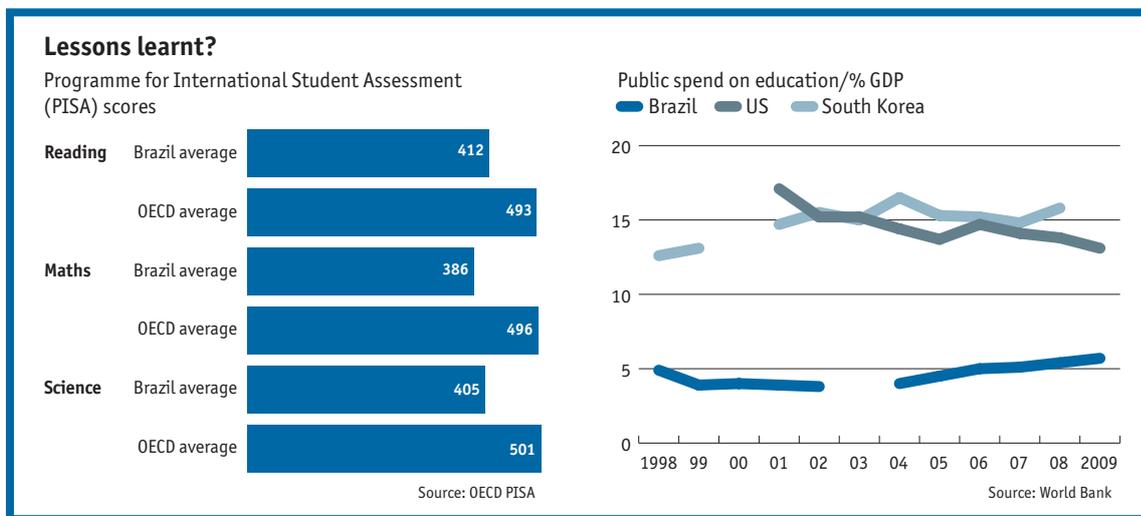
3 The human element: spreading the learning

Both the GCR and the GII indices give Brazil poor scores for human capital and education, although the GII includes some specific indicators on the research infrastructure for R&D, on which Brazil scores relatively well. The EIU anticipates that the number of people of working age will rise more rapidly than the growth of the population overall until 2020 (thereafter the trend will be reversed). Brazil needs to make rapid strides in upgrading the quality of new entrants into the labour force if it is to capitalise fully on its demographic dividend.

Brazil's poor performance in most international comparisons of educational attainment is well documented. As reflected in our business environment rankings, the EIU anticipates some improvement in this area over the next five years

thanks largely to expanded access to education. The average period of schooling (seven years currently) will continue to rise, raising the historically low education level of the general workforce.

Indeed, secondary education completion rates have doubled in a generation. As of 2009, only 25% of high school graduates aged 55-64 had completed upper secondary education but fully 53% of those aged 25-34 had done so. Despite this, overall secondary attainment in Brazil remains below the G20 average and far below the OECD. Public spending on education has risen to 5.7% of GDP—comparable to most OECD countries—but has remained inefficient. Still, education and vocational training will continue to improve in the



context of measures adopted by the government, such as performance targets for schools and a training programme introduced in 2011, the Programa Nacional de Acesso ao Ensino Técnico e ao Emprego (Pronatec, the National Programme of Access to Technical Schools and Employment), which aims to train 8m people by 2014. These are among the initiatives which over time will support greater innovation and competitiveness.

As for tertiary education, raising the game of private universities will be important to spreading skills and learning through the workforce. Traditionally, public universities have been of much better quality than their private counterparts. This trend is borne out by the dominance of public universities in the research space: 90% of academic articles are generated by public universities and almost 75% of scientists in Brazil work in

academia, according to the UNESCO Science Report published in 2010.

If public universities still dominate in terms of quality, private institutions are much more numerous. Improving their quality can thus have a substantial impact on raising skills levels in Brazil. In 2005, the government introduced tax breaks for private universities in return for giving around a tenth of their places free or at discounts to students on modest incomes, benefiting more than 1m pupils in the last seven years. Some 300,000 students will get low-interest loans this year. As well as expanding access to higher education to a wider swathe of the population, these schemes have helped to raise standards, because beneficiaries must reach minimum entry requirements. This in turn is helping cut drop-out rates. ■

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Digital is a powerful bright spot in an otherwise lagging physical infrastructure

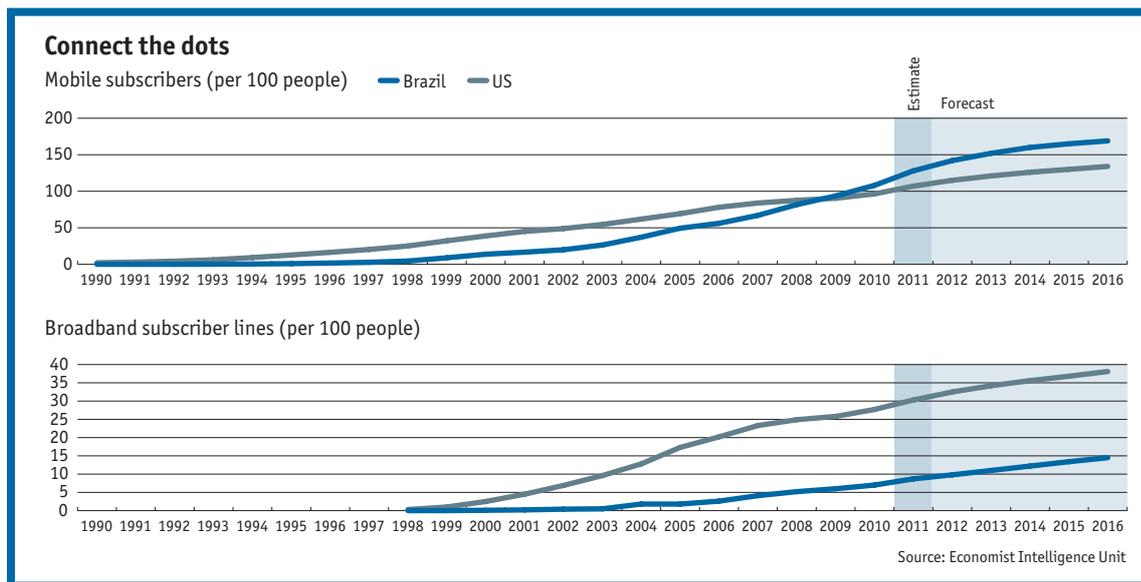
Getting the right skills in place is critical to generating innovative ideas in the first place, and having an adequate infrastructure is essential to bringing them to fruition. Infrastructure, along with the tax system, has long been one of the greatest weaknesses impairing Brazil's business environment. The current government has delivered on some of its promises to lower payroll tax rates, welcome relief particularly for small businesses, and to harmonise state sales taxes. Other recent tax breaks granted for some manufacturing sectors are temporary and unlikely to have a lasting impact. A more significant alleviation of the tax burden would require the authorities to implement a far-reaching fiscal reform to tackle structural spending inefficiencies. This is unlikely to be feasible during this administration.

Whereas the debate over the tax system remains virtually deadlocked, efforts to upgrade physical infrastructure, which are critical to improving competitiveness and lifting annual GDP growth rates, are starting to materialise and we expect significant progress over the next 10 years. Yet with such a backlog of investment to overcome, and inefficiencies leading to project delays, Brazil will remain in the bottom half of the EIU's business environment rankings when it comes to infrastructure overall.

The picture is significantly rosier—if far from perfect—when it comes to Brazil's digital infrastructure, which is helping spur innovation

and improve competitiveness across an array of industries. Brazil ranks highly in terms of broadband and mobile penetration, and is also one of the region's most avid users of social networks. The connectivity explosion of the last decade is, of course, not a story unique to Brazil. However, the social benefits that increased connectivity and access to information brings also plays a role in addressing Brazil's shortcomings in terms of human capital.

Growth in the telecommunications and technology industry has outpaced GDP growth in the past two decades. Information and communication technologies (ICT) expenditure was 5.3% of GDP in 2008, above the Latin American average (4.8%). Although per capital broadband connections have risen very strongly in the past decade, there is huge room for growth. Still, Brazil's scale brings with it opportunities to innovate. Brazil is currently the world's fifth-largest market for information technology and communications (ITC), and hopes to vault into third place by 2022 spurred by an array of government initiatives. Brazil ranks 42nd out of the 70 countries in the Economist Intelligence Unit's digital economy rankings for 2010. While this ranking is not nearly as good as it could be – impaired by the structural constraints that weigh on the business environment generally – Brazil is positioned slightly better than two other emerging market giants: China and India. The latter are held back by lower levels of



connectivity, particularly for consumers.

The government recognises that technology investment should be prioritised. President Dilma Rousseff approved new tax incentives in August to boost innovation in the ITC sectors as part of Plano Brasil Maior, a plan to boost the competitiveness of national industry. In August, the science and

technology ministry announced a US\$250m programme, TI Maior, to bolster the software and IT sectors through support for training, state purchases from companies developing software domestically and links with world research centres. Investment in technology parks is also growing apace, boosted by funding from FINEP. ■

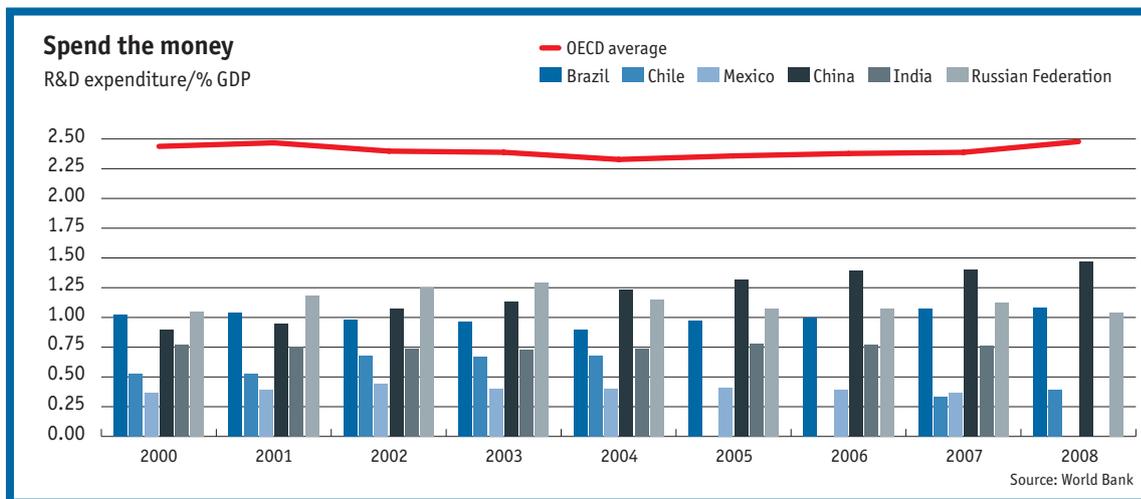
5 R&D expenditure and outcomes: bringing the private sector on board

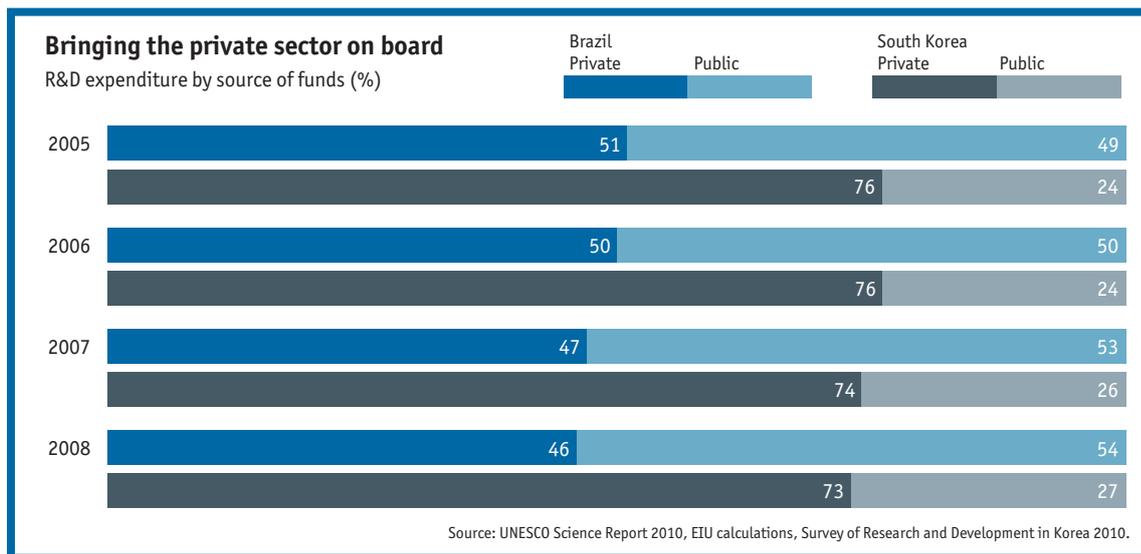
When it comes to R&D, Brazil has a decent research infrastructure in academia, but falls short not only on the overall level of investment, but also in encouraging the private sector to play a greater role. Brazil invests more of its national income in R&D than most of the rest of the Latin America region, but it lags behind China and its investment in this area is less than half the OECD average. Brazil's R&D expenditure in 2008, the most recent year for which figures are available, was 1.1% of GDP, compared with an OECD average of 2.5% of GDP. The public sector continues to shoulder most of the burden for R&D, a situation common to most developing countries.

It may be too soon to judge the effectiveness of government steps to foster private-sector R&D. It has expanded support for small and medium-size

enterprises through targeted subsidies for innovation, such as the Programa Primeira Empresa Inovador, aimed at addressing early-stage financing gaps for tech start-ups. It is also providing specific innovation-oriented credit lines through BNDES, the state development bank. Plano Maior also singles out tech startups for support. Yet either the government isn't communicating the opportunities well, or businesses are struggling to benefit from them: nearly half (45%) of respondents in the 2012 GE Innovation Survey believe that the Brazilian government has been unsuccessful in supporting research and innovation. Time will tell if that figure will shift as new initiatives mature.

Major multinational firms, meanwhile, are stepping up investment in sizeable R&D facilities in





Brazil. In 2010, IBM opened two R&D facilities, one in Rio de Janeiro and the other in São Paulo. The Swedish-Brazilian Centre of Research and Innovation (CISB) was set up the following year with a US\$50m initial investment and brings together over 40 partners from the public sector, academia and industry. That same year EMC started work on an R&D centre at the Federal University of

Rio de Janeiro technology park that aims to marry big data with Brazil's booming oil and gas industry. Siemens announced plans in May 2012 for its eighth R&D centre in Brazil, and DuPont opened its seventh this year. Cisco also jumped on the bandwagon and announced plans this year to open an innovation centre in Rio. ■

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Conclusion: Great expectations and much work to do

A more stable macroeconomic environment, underpinned by policy improvements in the past two decades, has increased the scope for Brazilian businesses to plan for the long term. Add to this the sheer scale of market opportunities in many areas and deepening financial markets, and some of the key conditions for innovation and competitiveness are in place. Government policies, while uneven, are starting to help, whether through investment in education or targeted tax

breaks and other incentives. Yet there is still a long way to go in many areas. When it comes to the imperatives of improving the physical infrastructure and raising skills level, structural advancements will take many years to materialise. Yet improvements to the digital infrastructure and rapid adoption by businesses may help mitigate other long-standing constraints, boosting the opportunities for creativity, ideas-sharing and knowledge building. ■

Whilst every effort has been taken to verify the accuracy of this information, neither The Economist Intelligence Unit Ltd. nor the sponsor of this report can accept any responsibility or liability for reliance by any person on this white paper or any of the information, opinions or conclusions set out in the white paper.

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