Latin American countries have a long way to go in using Big Data analytics, but the time is now to develop a regional strategy for Big Data.

Snapshot of Big Data Trends in Latin America

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As in many parts of the world, Big Data have become increasingly prominent in the business and information technology (IT) environments in Central and South America. In Brazil alone, it is estimated that in 2018 about $1.9 billion will be invested in Big Data (hardware, software, and services) as compared to $600 million in 2013 (Info.abril.com 2013).[1] This big market will very likely offer excellent opportunities to companies not only in Latin America but all over the world.

The continuous growth in volumes of data flowing in service and communication networks means that many areas—such as exploration of energy sources, earth science, and genetic research, among others—will be significantly impacted by the need for new ways to deal with very large volumes of information. At present only one in five companies in Latin America has immediate plans to invest in technologies oriented toward Big Data. But the rate of new public and private investments to support the mining of very large amounts of data is expected to increase annually at nearly 14 percent (BT Brasil 2012).

In the following sections I review the status of Big Data developments and needs in two of Latin America's largest economies, Brazil and Mexico, as well as selected other countries in the region. Factors at play include government

[1] Here and throughout, dollar amounts are in US dollars.

and private sector involvement, culture (national or organizational), awareness of Big Data, and skill levels and interest. I conclude with suggestions for an agenda to support the development of a Big Data strategy in Latin America.

Brazil

Brazil provides a good example of recent technological growth: the Brazilian market for hardware, software, and services is expected to move from $285 million in 2013 to $1 billion in 2017. According to a forecast by IDC Brazil, investments in software should correspond to one third of that value, whereas the Brazilian market for Big Data has grown 46 percent a year since 2012.[2] The fact is that the country's market for Big Data is already much bigger than for security software.

The government is the fifth largest sector when it comes to investments in Big Data (behind finance, telecommunications, manufacturing, and commerce), planning for the use of Big Data in education, procurement, and health services management, to name just a few areas. In the state of Minas Geraes, for instance, Big Data analytics has been applied to citizen involvement in setting priorities for public decision making, and this trend toward e-democracy is spreading in other Brazilian states.

Besides government, a number of private companies are using Big Data analytics in Brazil. A global survey conducted by IBM and the Saïd Business School at the University of Oxford found that 51 percent of 65 companies surveyed in Brazil are planning to use Big Data analytics, and another 24 percent are already implementing pilot projects (Fox et al. 2013). One of the largest private banks in Brazil, Itau Bank, was a pioneer in the use of Big Data analytics in the country; other well-known companies that use Big Data are Buscapé (e-commerce) and Votorantin (cement).

Yet many doubts still exist about the value added of Big Data–related business solutions for companies. Of Brazilian executives interviewed at 65 companies, 22 percent consider that Big Data implies an enrichment of analysis, and 19 percent think of Big Data in terms of real-time information acquisition (Baguete Diário 2013). The same survey also revealed a significant increase in the number of executives in Brazil who perceive the practical benefits of Big Data analytics in terms of enabling competitive advantages for their firms. Finally, the results showed a very important increase in the number of firms in Brazil that have actually achieved a competitive advantage in the last two years by using Big Data analytics.

A joint study by the Brazilian Institute of Market Intelligence and the Brazilian E-business Association yielded the following findings: about 65 percent of the marketing sector in Brazil is definitely looking forward to widespread use of Big Data, and in the IT sector the growth of Big Data analytics has been about 16 percent. The study surveyed 326 companies in different areas of the Brazilian economy. Among the IT professionals interviewed, 58 percent declared that they had knowledge about Big Data, 35 percent had heard about it but had no knowledge, and 7 percent had never heard of it. Among marketing professionals, 42 percent knew about Big Data, 35 percent had heard of it, and 23 percent had never heard of it (Scussel 2013).

In one Brazilian state, Big Data analytics has been applied to citizen involvement in setting priorities for public decision making.

There is still a long way to go when it comes to disseminating the use of Big Data in Brazil, although this country is probably ahead of most others in Latin America. National seminars, conferences, and panel discussions are organized for business executives as well as IT experts. And university programs in Brazil have a growing number of research projects on Big Data analytics in fields such as computer science, engineering, and business administration.

Mexico

Big Data analytics has a high potential to take off in Mexico. Like other Latin American countries, it has a well-developed university system, so availability of skilled human resources to work with Big Data will likely not be a problem in this country.

A recent EMC survey of 254 IT decision makers produced the following results: 92 percent of them recognized that Big Data could help them in making

[2] This paragraph draws on statistics and projections in Info.abril.com (2013).

better decisions, 69 percent believed that it will be a key factor in determining "winners" and "losers" in industry, and 47 percent declared that they had already achieved competitive advantage as a result of Big Data analytics (EMC 2013). However, 27 percent said they did not have plans to use Big Data in their workplace.

The main inhibitors to adoption of Big Data analytics in Mexico seem to be lack of adequate knowledge in an organization (19 percent), lack of clear evidence of success or proven return on investment (19 percent), and the fact that organizational culture may not be prepared for Big Data (17 percent) (Computerworld Mexico 2013).

In many Latin American countries managers are not convinced that Big Data analytics can lead to competitive advantages.

Argentina, Chile, Colombia, and Peru

Argentina has had for decades one of the highest levels of educational development in Latin America, but there is a general lack of knowledge about Big Data at Argentinean companies. A recent survey of firms in Argentina revealed that 80 percent of them had no real data strategy in 2013, and only about 15 percent could be considered as having developed some type of Big Data analytics (Destefanis 2013).

Companies in both Chile and Peru practice data warehousing, but not Big Data analytics. Although expertise in data analysis exists in these countries, most companies seem to be more concerned with producing profit through internal projects of data warehousing and information management than really using Big Data. However, there are important initiatives under way. For example, Teradata implemented its first Big Data projects for analyzing international information in both Chile and Peru at the beginning of 2014, to support solutions in either the retail or banking sector (Rogers 2013).

Other countries in Latin America are still a little behind in their first steps in Big Data. In Colombia, for example, a recent survey of 183 IT managers found that 92 percent of them believe that Big Data can improve organizational decision making, but only 33 percent seem to believe that Big Data analytics can lead to competitive advantages, and 42 percent declared that they had no plans to use Big Data analytics. They stated that, in their view, intuition and experience are the most important factors behind good business decision making. In other words, the country seems not to have a culture that supports the use of Big Data yet. This was in fact confirmed by 73 percent of the managers interviewed. Unfortunately, 80 percent of the decision makers also said that it is difficult for them to keep up with the latest innovations in the field. In general, companies in Colombia are not aware that Big Data can add significant value to their businesses (EMC 2013), although a possible indicator of a shifting trend for Colombian businesses is Aentropico, an international predictive analytics company with offices in Bogotá, Rio de Janeiro, and Boston.

Conclusion: An Agenda for Big Data Development in Latin America

The countries of Latin America have a long way to go toward using Big Data analytics. However, because many of them have high-level human resources in IT and business administration as well as at least some managers interested in making use of technological innovations, the countries are ripe for developing a Latin American strategy for Big Data. To that end, it may be helpful to outline an agenda to foster the development of this area in the region. This agenda can build on country-specific initiatives and strengths and should include the following interrelated steps:

- National scientific and technological societies in a very broad range of fields—not only computer science, information technology, operations research, and statistics but also medicine, law, public administration, education, agriculture, finance, earth science, and health management, among others—should organize events such as symposia, forums, and conventions on Big Data and Big Data analytics in their fields for researchers, practitioners, educators, students, policymakers, and other interested parties.
- Big Data companies should be invited to actively participate in these events not only to show their products (e.g., hardware, software, user-centric solutions) but also to present evidence of competitive advantages.

- University, law, and business school students should learn more about Big Data and Big Data analytics. Their curricula should be adapted to include topics such as user privacy and security as well as the creation and development of business models that provide incentives for data sharing and use.
- Other categories of incentives to use Big Data should be explored by national societies and professional organizations, emphasizing the creation of startups in Big Data analytics.

Many IT professionals in Latin America are conscious of the importance of developing their own business models (rather than copying those of the United States) as they understand that unique opportunities are available on their continent (Browne 2013). With government as a catalyst, synergy between private sector development and public-private collaboration is a model that has been working in other parts of the world (WEF 2012). It can lead the way to a bright future for Big Data in Latin America. A call to action is in the air.

References

Baguete Diário. 2013. Empresas nacionais estão atentas ao Big Data [National companies are aware of Big Data]. July 12. Available at www.baguete.com.br/noticias/12/07/2013/empresas-nacionais-estao-atentas-ao-big-data.

Browne C. 2013. Big Data becoming big business in Latin America. Nearshore Blog, June 11. Available at http://nearshore.com/2013/06/big-data-becoming-big-business-in-latin-america.html.

BT Brasil. 2012. Big Data in Latin America: $370 million in 2012 and US$1 billion in 2015 [in Portuguese]. Newsfeed, September 10. Porto Alegre. Available at http://letstalk.globalservices.bt.com/pt/2012/09/big-data-na-america-latina-us-370-milhoes-em-2012-e-us-1-bi-em-2015/.

Computerworld Mexico. 2013. Big Data gana adeptos en México, pero subsiste el desconocimiento [Big Data gains followers in Mexico, but lack of knowledge prevails]. August 22. Available at www.pcworld.com.mx/Articulos/29937.htm≠.

Destefanis MG. 2013. The revolutionary Big Data: Trend and vision (Argentina)—Results [in Spanish]. CXO Community, November 8. Available at http://cxo-community.com/articulos/estadisticas/82-tecnologias-infraestructura/5792-encuestaresp-la-revolucionaria-big-data-tendencia-y-vision-argentina-resultados.html.

EMC. 2013. EMC Forum Survey 2013 Results: Colombia. Available at www.emc.com/campaign/global/forum2013/survey.htm.

Fox B, van den Dam R, Shockley R. 2013. Analytics: Real-world use of big data in telecommunications—How innovative communications service providers are extracting value from uncertain data. Somers, NY: IBM Global Services.

Info.abril.com. 2013. Os cases e números do Big Data no Brasil em 2013. October 10. Available at http://info.abril.com.br/noticias/ti/2013/09/os-cases-e-numeros-do-big-data-no-brasil-em-2013.shtml.

Rogers A. 2013. Big Data still immature in Chile, Peru–Teradata. BNamericas, March 26. Available at www.bnamericas.com/news/technology/big-data-still-immature-in-chile-peru-teradata.

Scussel A. 2013. Big Data will handle R$630 mi in Brazil in 2013 [in Portuguese]. MundoGeo.com, September 2. Available at http://mundogeo.com/blog/2013/09/02/big-data-deve-movimentar-630-milhoes-no-brasil-em-2013/.

WEF [World Economic Forum]. 2012. Big Data, Big Impact: New Possibilities for International Development. WEF Briefing. Geneva. Available at www.weforum.org/reports/big-data-big-impact-new-possibilities-international-development.