OPPORTUNITIES IN TECHNOLOGY FOR THE BASE OF THE PYRAMID IN BRAZIL

Aspen Network of Development Entrepreneurs

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INTRODUCTION

This report is a summary of the main discussions presented during the two editions of "Opportunities in Technology for the Base of the Pyramid" event – the first of which was held in Recife on November 12, 2013, the second of which was held in Sao Paulo on May, 20, 2014. The event was hosted by the Aspen Network of Development Entrepreneurs (ANDE), eBay Foundation, Instituto de Cidadania Empresarial (ICE) with support from ARTEMISIA, Cria Global and Porto Digital.

With a focus on the important role of technology in social development, the event connected different players from the sector with the objectives of:

• Generating networking opportunities within the sector in order to share local and global knowledge to develop the social impact ecosystem;

• Identifying services and products that improve standard of living;

• Exploring the relevance of technological innovation for low-income communities.

The meeting also included contributions from social business organizations such as: ARTEMISIA, Endeavor, Grameen Foundation, Impact HUB, InfoWay, Intel, itsNOON, Joy Street, Kiduca, OLHAconta, Pipa, Plano CDE, Porto Digital, PorVir, ProDeaf, Vox Capital and World Transforming Technologies.

THE BASE OF THE PYRAMID IN BRAZIL

The base of the pyramid in Brazil

One of ANDE's focuses is to bring the Base of the Pyramid to the center of discussions in order to promote a more equal and fair development model in emerging markets. Throughout sector events, we intend to deepen such discussions, highlighting the role of entrepreneurship in overcoming social challenges.

Demographically, the Base of the Pyramid has always been wide and extensive in Brazil. This prevalent demographic has become increasingly relevant as the country has faced a decrease in income inequality – as given by the GINI index in the graph below[1].

GINI Coefficient in Brazil
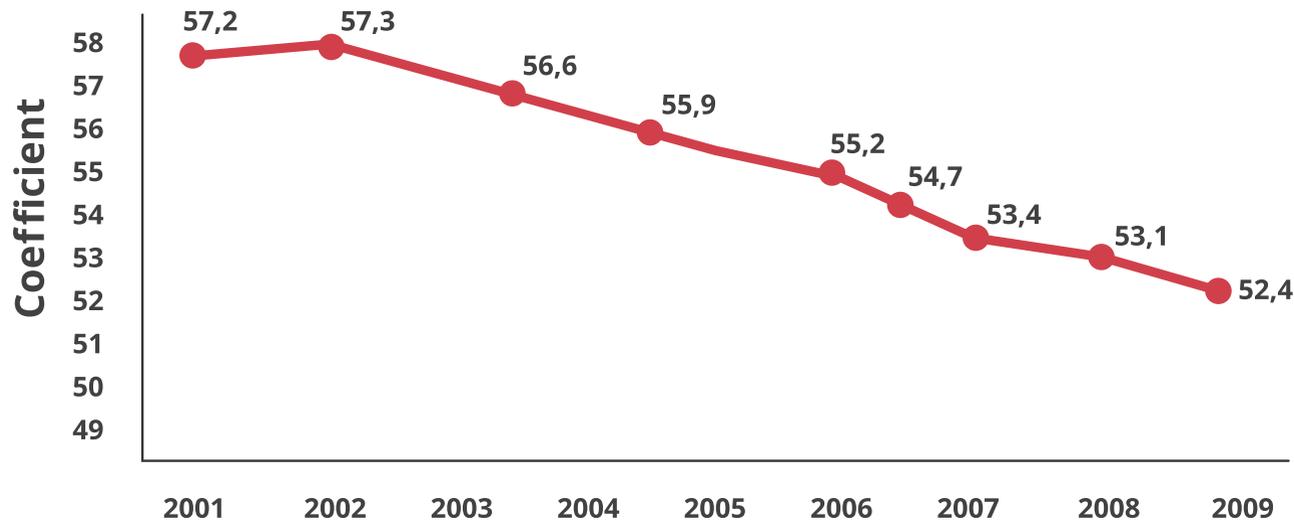
GINI Index	
COUNTRY	SCORE
India	36.8
Russia	41.7
China	47.4
Mexico	48.3
Brazil	51.9
South Africa	63.1

1 Source: Gini Coefficient World CIA Report 2009

This phenomenon is closely followed by a rise in social mobility, especially in regards to the lowest classes of the Brazilian population. Among other factors, this rise is a response to the increase in minimum wage and formal employment in the economy, as well as credit expansion and improved policies towards the reduction of income inequality. The following table provides a formal definition of the Brazilian parameters of social classes. It is based on the terminology used by ANDE in this report.
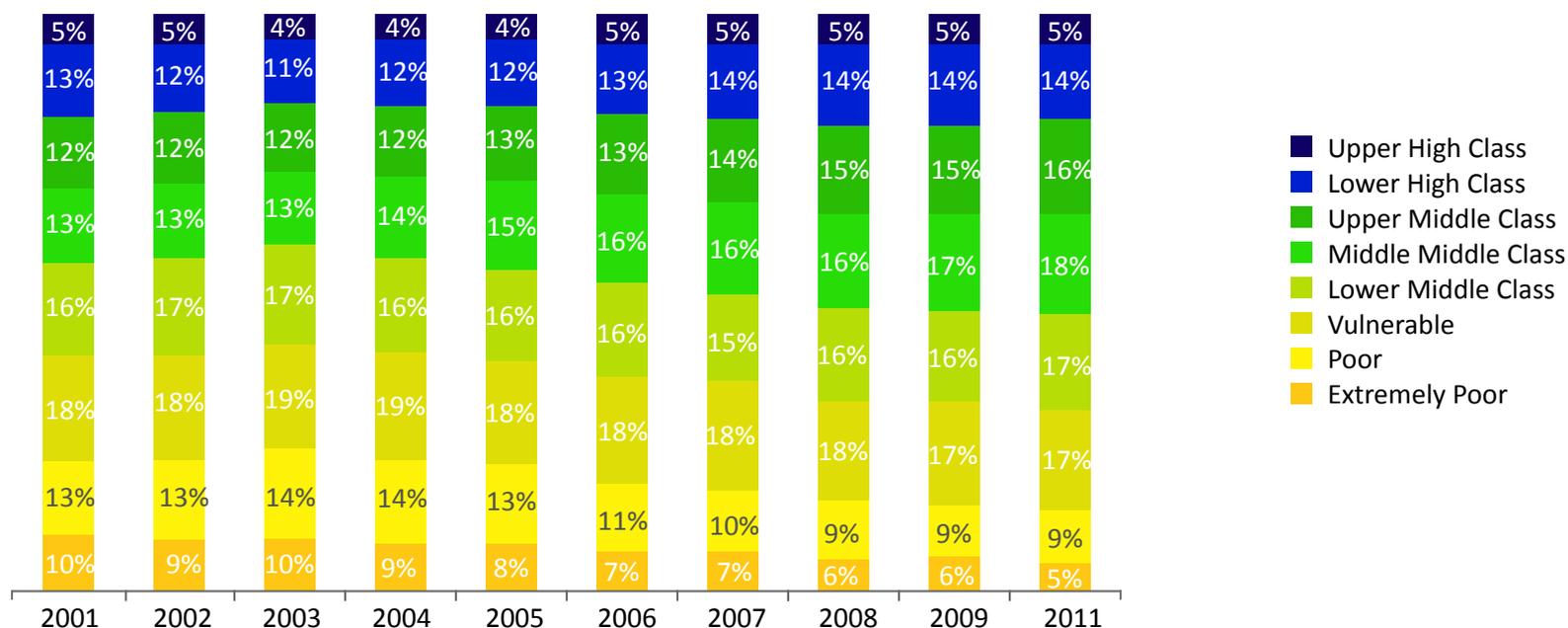
Specific definitions for each classes:

CLASSES	MONTHLY HOUSEHOLD INCOME *PER CAPITA*	AVERAGE NUMBER OF PEOPLE PER HOUSE	EQUIVALENCE - BRAZILIAN CRITERIA
Upper High Class	More than $1425	2,3	A
Lower High Class	$586 to $1425	2,6	B1
Upper Middle Class	$368 to $586	2,9	B2
Middle Middle Class	$254 to $368	2,8	C1

CLASSES	MONTHLY HOUSEHOLD INCOME *PER CAPITA*	AVERAGE NUMBER OF PEOPLE PER HOUSE	EQUIVALENCE - BRAZILIAN CRITERIA
Lower Middle Class	$167 to $254	3,6	C2
Vulnerable	$93 to $167	3,9	D
Poor	$47 to $93	4,5	E
Extremely Poor	Under $46	3,7	E

The IBGE (Brazilian Institute of Geography and Statistics) utilizes this definition according to the monthly household income per person[2]. The Brazilian 'middle class' corresponds to families with a monthly income per capita between R$ 300.00 and R$ 1,200.00. Today they represent half of the country's population, and as shown in the below diagram, the 'middle class' is still growing[3]. We observed that while the size of the upper classes remain stable, the middle class is indisputably growing and the lower classes are decreasing **(the poor from 13% in 2001 to 9% in 2011; and extremely poor from 10% in 2001 to 5% in 2011)**.
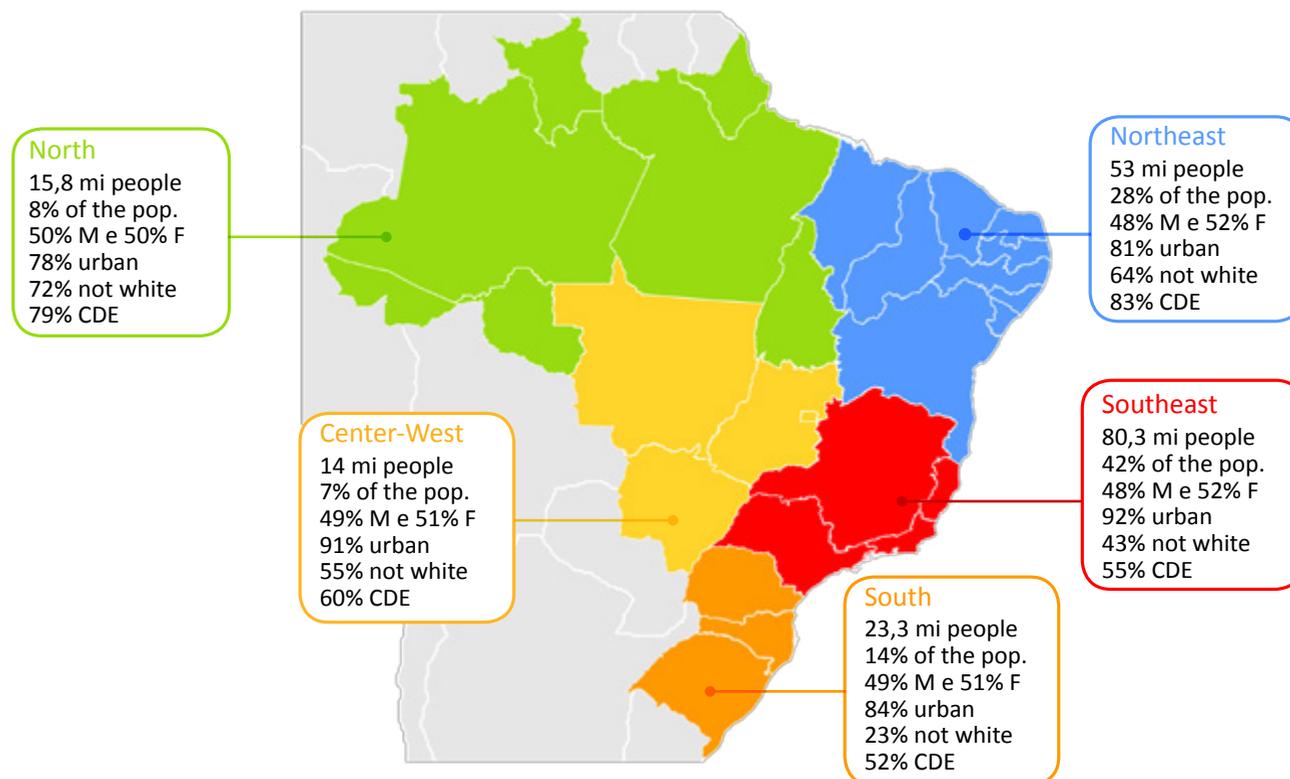
Population by social class: 2001 - 2011

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2011
Upper High Class	5%	5%	4%	4%	4%	5%	5%	5%	5%	5%
Lower High Class	13%	12%	11%	12%	12%	13%	14%	14%	14%	14%
Upper Middle Class	12%	12%	12%	12%	13%	13%	14%	15%	15%	16%
Middle Middle Class	13%	13%	13%	14%	15%	16%	16%	16%	17%	18%
Lower Middle Class	16%	17%	17%	16%	16%	16%	15%	16%	16%	17%
Vulnerable	18%	18%	19%	19%	18%	18%	18%	18%	17%	17%
Poor	13%	13%	14%	14%	13%	11%	10%	9%	9%	9%
Extremely Poor	10%	9%	10%	9%	8%	7%	7%	6%	6%	5%

The discrepancy in terms of income distribution, however, is not only a hot topic of discussion for the country, but is also a prevalent regional issue. There is still a strong concentration of national income in certain regions, which privileges their respective development at the expense of others.

The following diagram by IBGE presents a significant portrait of the country, one that clearly points out the relevance of Brazil's **Base of the Pyramid, representing the biggest part of the population in every state and 66% of the total population**[4].

Brazil: Regional Diversity

North
15,8 mi people
8% of the pop.
50% M e 50% F
78% urban
72% not white
79% CDE

Northeast
53 mi people
28% of the pop.
48% M e 52% F
81% urban
64% not white
83% CDE

Center-West
14 mi people
7% of the pop.
49% M e 51% F
91% urban
55% not white
60% CDE

Southeast
80,3 mi people
42% of the pop.
48% M e 52% F
92% urban
43% not white
55% CDE

South
23,3 mi people
14% of the pop.
49% M e 51% F
84% urban
23% not white
52% CDE

4

4 Source: IBGE. National Survey of Households – PNAD 2011/Censo 2010

The observation of the size of this segment of the population highlights the need to better understand it. An analysis made by Maurício Prado, director of the CDE Plan, during the event in São Paulo contributes to this perception. In the following diagram "Distinct Consumer Logics of the New Middle Class for the New Middle Classes", it is possible to observe how the middle and lower classes expect to integrate in market:

"Distinct Consumer Logics of the 'New Middle Class' for the 'New Middle Classes'"

	UPPER HIGH CLASS	
Personalization	LOWER HIGH CLASS	
NEW MIDDLE CLASSES	UPPER MIDDLE CLASS	Expectation of ASCENSION
	MIDDLE MIDDLE CLASS	DIFFERENTIATION/ Show off its conquers
	LOWER MIDDLE CLASS	COMFORT/ Enlarge the consume
	VULNERABLE	
ACCESS to opportunities and services	POOR	
	EXTREMELY POOR	INCLUSION/ Guarantee the basics

Source: IBGE. National Survey of Households – PNAD 2011

Already established middle class

• Diversification of consumption, new categories: leisure and entertainment, cars, private education, consumer goods and technology

• Desire to flaunt status, along with a mismanagement of acquired resources, which results in debts

Ascending middle class

• Extended comfort: housing, durable goods, technology, leisure
• Credit for consumption
• Education for their children and for themselves
• "Empowerment" of their children (access allied with quality)

Low Income

• Search for access and inclusion: housing, basic
• "Empowerment" of their children
• Professional qualification
• Credit to consume and to endeavor[5]

Within this framework, technology reveals itself as an innovative instrument for the development of solutions able further the social mobility of the Base of the Pyramid in the country.

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5 Source: Maurício Prado analysis, during the 'Invention and Technology to the BoP' event

WHY TECHNOLOGY?

Access to technology:

The technology uptake by the middle and lower classes has shown a steady increase in Brazil, due to factors such as:
• The social mobility that has occurred in the last decade;
• The popularization of computers, mobiles and smartphones;

• The recent expansion of internet access.
The following Graphs 1 and 2 respectively demonstrate the progressive insertion of technology into the Brazilian domiciles and the growing number of computers being used in the country:

Access to technological goods

Source: IBGE. National Survey of Households – PNAD 2011
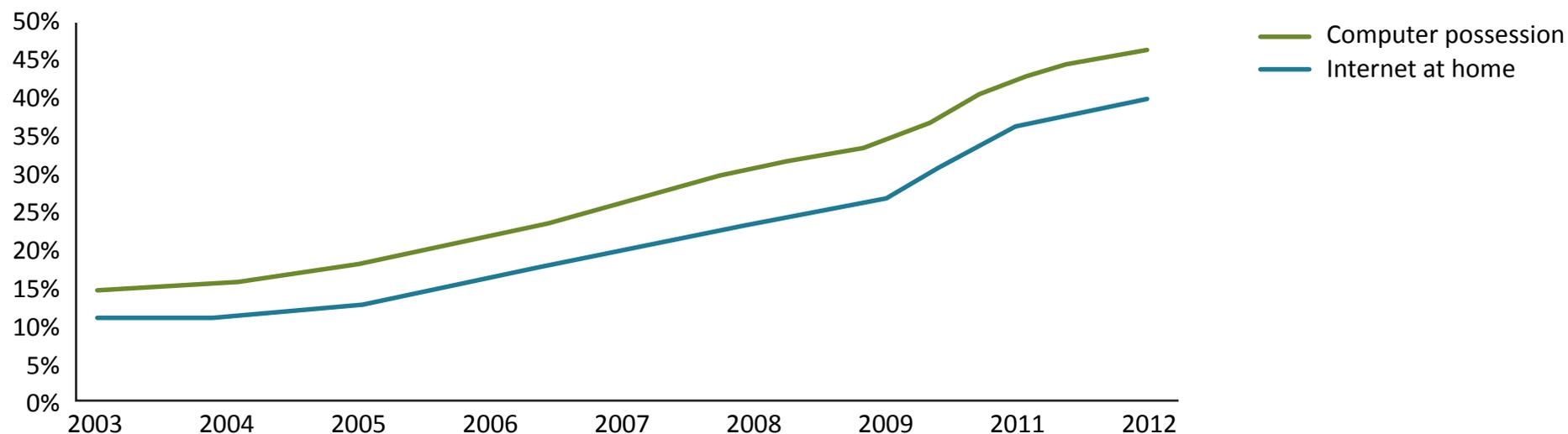
Total of computers in use in Brazil - Thousands of unities
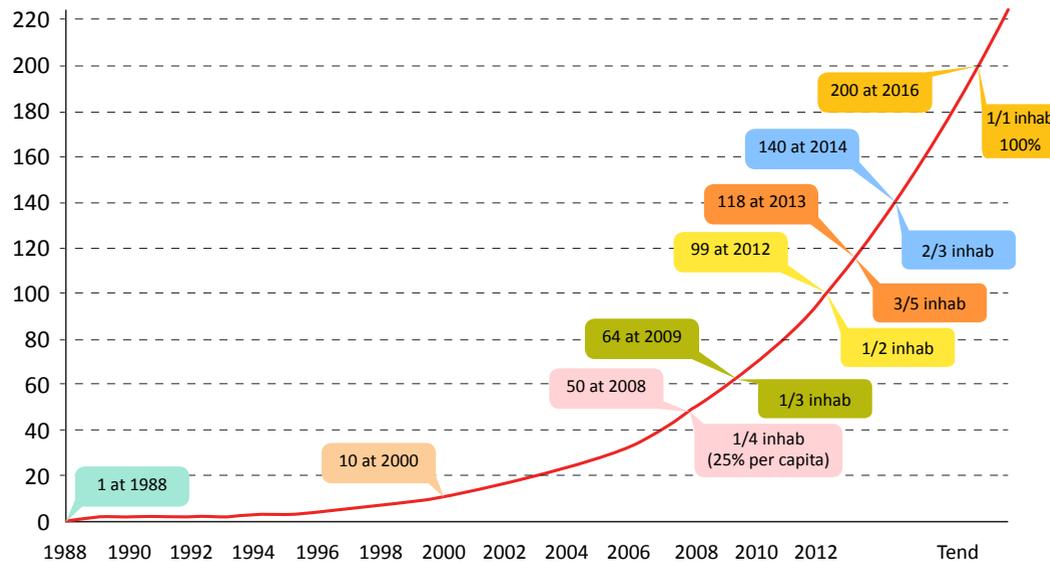
Source: Annual research CIA, FGV-EAESP, 24º edition, 2013

Some relevant figures:

- **28.1 million** domiciles **have at least one computer**[6];
- **24.3 million** domiciles **have internet access**[6];
- **80.9 million** people **regularly use Internet in Brazil**. This includes **47% of the Class C and 14% of the Classes D and E**. Class A has 94% Class B 80%[7].
- Taking into account the number of people who never used internet, 68 million of those are from CDE classes[7].
- The number of users also differs according to the region of the country. **In the South, Southeast and Center-West, more than 50% population uses it regularly. In the North and Northeast, the figure is below 40%[7].**

According to Graph 2, internet usage only tends to increase. This confirms the untapped potential of technological services utilization for generating social impact.

The role of mobiles

Even more accessible than computers, mobile phones have been largely responsible for the CDE classes' technological uptake. According to Mauricio Prado, director of Plano CDE, **3.8 million Brazilians first accessed the internet through a mobile device, thanks to the popularization of prepaid plans**.

Adherence to these gadgets is very high, as noticeable in the following tables formulated from preliminary data from Anatel (the National Agency of Telecommunications). It is important to note the total of mobiles in November 2013 was 270.5 million or 1.36 per capita.

MOBILE PHONE BY SOCIAL CLASS - 2012		
SOCIAL CLASS	MOBILE OWNERS	MOBILE USERS
A	97%	98%
B	93%	94%
C	83%	86%
DE	59%	67%

MOBILE IN BRAZIL						
%	2007	2008	2009	2010	2011	2012
Mobile Owners	51%	52%	59%	64%	76%	80%
Mobile Users	66%	67%	75%	79%	82%	84%

It is important to consider that actual phone calls are only one of the vast functionalities offered by these gadgets. A high concentration of functions, products and services are available for interaction with daily, building an excellent tool for business for the BoP.

A LOOK INTO THE FUTURE

The technology platforms have indeed streamlined a number of processes, shortening distances and lowering services and products costs, thus creating a wide range of business opportunities – particularly for the CDE classes. However, beyond simply realizing the ways in which technology has contributed to the development of the BoP in Brazil, it becomes necessary to put the social and technology sectors together when approaching low-income populations as a strategy to broaden the possibilities within this ecosystem.

In this sense, Dhaval Chada, co-founder of 'Pipa e Cria Global', made an interesting exposition during the event in Sao Paulo. Dhaval questioned the current process of creation of businesses directed at the BoP, a top-down perspective, which demonstrates a lack of corresponding to the actual needs and desires of low-class consumers. According to him, it is necessary to integrate the BoP in the formulation of solutions and approaches aimed to attend its needs in order to improve the efficiency of low-income businesses.

Furthermore, Dhaval highlighted the importance of shortening the lag between what technology is available and what the market is ready to invest and implement. Based on his perspective, the entrepreneurship sector remains conservative when compared to the technological sector, and it is not exploring all the potential of technological innovations, which multiply entrepreneurial potential exponentially. This is due, among other factors, to the lack of information about these innovations, which remain restricted to its own technological sector and other specific fields. Dhaval highlighted that it is necessary to align the technological and the entrepreneurship sectors in order to strengthen the possibilities of interaction between them, as well of improving the services offered by the market.

> **"We have to look to the market not only with today's eyes, but also from future perspectives"**
>
> Dhaval Chada

Internet of Things

In an effort to envision such future perspectives, the event included a presentation by Max Leite, Intel innovation director, who spoke about the 'Internet of Things'. This proposal advocates for connectivity among people, products, and services through a full expansion within the technology sector.

This process would work to connect everyday devices to small gadgets that would generate usage data. From that point on, the connectivity would produce increased intelligence, and through data crossing, would become better able to serve the needs and preferences of each consumer. In large scale, these processes could be used by the public administration to improve urban mobility, for example, by integrated analysis of the data produced by commuters. Finally, the 'Internet of Things' is a significant example of how technology pioneering can benefit society.

CHALLENGES IDENTIFIED IN THE MEETINGS

Brazilian Population

• 48 million people still belong to the poorer classes, representing almost 1 out of every 4 Brazilians[8];

• Unplanned growth of middle-sized cities, chaotic urban development;

• High rates of functional illiteracy, amounting to about 27.8 million Brazilians[9];

• High and increasing debt level of the middle class due to their lack of personal financial management skills.

8,9
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8 Source: (Estudo Brasil Brasis, Plano CDE, 2014)
9 Source: IBGE, 2012

Social Entrepreneurship — Northeast Region

• **Limited knowledge of the local market about impact business**

In comparison to other regions – such as São Paulo and Rio de Janeiro – where the topic has been debated for some time, the knowledge about this theme in the Northeast is still restricted to a small group of actors. However, the topic has been well received and quickly absorbed by entrepreneurs, teachers and other supporters of the ecosystem. This reveals the potential for regional strategies that raise awareness about the field.

• **Lack of structure of the field to support emerging social business**

Despite having a relatively supportive entrepreneurial ecosystem - especially around technology-based entrepreneurship - there is not much support for social business in the Northeast of Brazil. However, in Recife there is a rapidly emerging interest around social entrepreneurship and many players such as Artemisia, Endeavor (Vision of Success Program), Impact HUB, and others have begun to enter the space. Although there is still a lack of actors (foundations, angel investors) and funds focused in this type of business, the increased interest in the area is promising.

CASES

Entrepreneurs panel

After understanding how the low income Brazilian population relates to technology, the next step of the event was to investigate how technological services are currently promoting social innovation in the country. With this purpose, ANDE conducted interviews and panels with social impact entrepreneurs from different sectors, united by the common factor of using technology, especially the Internet, as the basis for their businesses.

Eliana Yamaguchi, Founder Associate of itsNOON

The platform itsNOON aims to generate shared value for both companies and society, using creativity and the Internet as a way of uniting interests. The process is dynamic: the companies are responsible for creating challenges and providing a budget for innovative projects, which can be proposed by any individual of the civil society and selected via a "creative call" available on the itsNOON website. According to Eliana, a significant number of the proposals come from the low-income population, which demonstrates the potential of this innovative system to create equitable and inclusive opportunities.

Fernando Fernandes, Founder Associate of Saútil

Saútil is an online platform that aims to facilitate access to health public services. It provides online information about the availability of medicines, consultations, and exams on the Brazilian Unified Health System, called SUS. By providing this information freely for the user, the platform decreases the efforts and costs required to access the public health system, known for its complexity and bureaucracy. The ultimate result is the generation of sharp improvements in the life quality of its users, who mostly belong to lower classes and are deeply dependent on the SUS. In addition, the portal recently started to provide simple but effective knowledge about the treatment and prevention of a number of diseases.

Flávio Almeida, Director of Operations of ProDeaf

ProDeaf is a voice and text translation software that aims to improve communication and access to information for 10 million hearing impaired people in Brazil. For now, the software translates only the Portuguese to the Libras system, the sign language of Brazil.

Fred Vasconcelos, CEO of Joy Street

Joy Street is a portal of educational competitions, which combines learning and entertainment, encouraging a new form of education. It provides ludic and innovative tools for teachers to use in the classroom, such as the Olympic Games of Digital Education.

Jorge Proença, Founder Associate of Kiduca

The Kiduca project is an educational portal that promotes learning via an innovative virtual environment. Driven to elementary education, the platform dialogues with the current universe of children by developing educational themes through online games in which teachers and students can interact and learn together. Following the national educational guidelines, Kiduca has created an opportunity to improve the learning quality in the country, especially if used by the CDE classes, which suffer the most from the deficits of the public educational system.

Ney Paranaguá, General Director of **InfoWay**

InfoWay is an organization that seeks to positively impact low-income communities in the North and Northeast area of Brazil through low-cost and high quality health services. The health insurance Uniplam, which accounts over 250 thousand users on the states of Amazonas, Ceará, Pernambuco and Piauí, is an example of these services, all of which are technological.

Samar Sleiman, Founder Associate of **OLHAconta**

OLHAconta is a platform that promotes financial inclusion via mobile phones. The low-income population in Brazil suffers from a lack of banking services that target their needs, such as account opening, credit access, and proofing income. This is due, among several factors, to the lack of infrastructure and the existence of environmental risks on the suburbs, where most of the BoP population lives. In turn, this inhibits the proliferation of bank branches in these areas. By considering this problem, OLHAconta created a platform for mobile phones that offers services such as paying bills, savings, receipts and transfers. Thereby, the business eliminates the physical obstacles that hinder the financial inclusion of this population with simple technology and low-cost mechanisms.

Tyler Spaldding, Social Innovation Global Manager of **eBay**

Despite already being an established company in the market, the eBay platform also serves as an illustration of how technology is able to generate solutions for the Base of the Pyramid. This web portal introduced online commerce as a way of generating income through low cost mechanisms and an indoor structure, opening a possibility for several new businesses and entrepreneurs.

IDEAS FROM THE PARTICIPANTS

At the event in Sao Paulo, a dynamic co-creation of solutions was proposed to participants to promote their interaction as all as an exercise in understanding ecosystem development in a more tangible way. Seven groups were instructed to think about viable solutions to problems related to a theme of their choosing: education, health, financial services, subway and a platform to foster dreams. At the end of the process, each team formulated an Elevator Pitch and presented it to the others, resulting in an interesting variety of innovative proposals.

Team 1 – Education

The Pitch "Trough Choices + Technology" aims to solve the lack of interest and participation by the "Khan Waldorf" Platform, a web portal which offers didactic programs and methodology guides for the learning process. The project's main objective is to improve the public schools' Basic and Secondary Education by making the students leading figures of this process.

Team 2 – Education

The Pitch "Full Time Education for Teachers" is an incentive model for the implementation of the full time education system at public schools. The program seeks to improve and expand the use of technology in full-time education by rewarding teachers who actively promote it. "Full time education will only make sense for the students if it makes for the teachers", is the underlying principle.

Finances

The Pitch "Platform for Information Exchange about Finances with the Local Market" helps solve financial mismanagement of BoP families' through a low-cost financial evaluation platform. The achieved results are the facilitation of microcredit, paying debts and opening savings for the BoP that otherwise would have difficulties accessing these services.

Dream Making

The Pitch "The Collaborative Network" is composed of a premium game application for youth, which helps remove barriers to achieving the dreams and objectives of the BoP.

Team 1 – Health

The Pitch "App + Health Kit for CDE Classes" aims to help on the prevention of chronic diseases through technological and low-cost solutions for diagnosis and preventive exams. The ultimate objective is to reduce the rates of these highly prevalent and threatening diseases.

Team 2 – Health

The Pitch "Game App Plus Health" seeks to improve the prevention of chronic diseases within the CDE classes. It encourages changes in the habits of this population and improves self-esteem by providing immediate rewards to those who engage in these processes.

Subway

The Pitch "Hi-tech Boarding" utilizes the potential of large-influx spaces for promoting digital inclusion and technological integration of the low-income population. The initiative aims to transform the subway space with an open Wi-Fi signal and boarding rooms, which provide benches for people to talk, learn about technological tools, and electronic totems allow users to search for jobs or other information.

RECOMMENDATIONS FOR THE SECTOR

Social Restructuring

• Businesses must notice the restructuring of the middle and lower classes - the latter now represents a growing consumer market, and businesses must try to understand their needs and demands;

• They must also notice the technology spread into the CDE classes and the potential for generating social impact through the utilization of technological services (internet, mobile);

Explore Technology's Transformative Potential

• Consider the transformative potential of the 'Internet of Things' as an example of how the technological pioneering can benefit society;

• Understand technology's own evolution in relation to how it can further improve the development of the CDE classes;

• BoP solutions must be inspired by and follow technology's pioneer

spirit, growing linearly to shorten the lag between what technology is capable of developing and what the market is ready to invest and implement;

• Explore technology innovations to build new social business concepts, such as adaptive educational platforms.

BoP Integration

• It is necessary to integrate the BoP to formulate solutions and approaches aimed to attend its needs to truly improve the efficiency of the business sector;

• Create new ways to connect entrepreneurs and communities in order to generate more businesses with impact for the BoP;

• It is crucial to improve the connections of the current players in the Brazilian social entrepreneurship ecosystem, highlighting complimentary links and adding up forces to promote growth of the field possible, as well as of the number of people reached and products and services offered.

Knowledge Production

• Develop more research and analyses on the needs and behaviors of BoP consumers and the uptake of technological gadgets;

• Present more data and research about the current market changes and reasons for investing in new business models;

• Develop both local and international cases about social entrepreneurs, and then promote their disclosure;

• Map and promote the production, dissemination and exchange of information on innovations in education, health, transportation, financial services, and other fields;

• Develop new courses in innovation management and social business;

• Host more events about business with a positive impact to disseminate more knowledge about the field.

Engage Government

• Strengthen links with the government and map the potential public-private partnerships in the local field;

• Develop market studies on specific government programs created to solve the needs of the BoP. This can help the sector to monitor key public policies;

• Start looking for scalable partnerships between Senac, Senai, and federal universities to assist in the management of enterprises;

• Improve connections among universities and entrepreneurs, in order to stimulate collaboration and the development of new business ideas and solutions.

Strengthening the Network

• Improve the connection between social entrepreneurs placed in different regions of the country;

• Develop and encourage networking opportunities among local intermediaries, such as investors, incubators and universities;

• Create a management and financial support platform for entrepreneurs in order to foster success and growth;

• Encourage the involvement of entrepreneurs in social business by educating them on the challenges facing low-income communities and sponsoring business plan competitions.

CONCLUSION

The two editions of the event "Opportunities in Technology for the Base of the Pyramid" – taking place in Sao Paulo and Recife – were fundamental in effectively discussing the sectors of entrepreneurism and technology in tandem.

These events featured a variety of businesses and ideas that are currently gaining traction in the field, and demonstrated the potential of technology-based entrepreneurship to meet the needs of the

BOP. At the same time, the events highlighted the need for more collaborative efforts to strengthen this now nascent ecosystem. There is great opportunity and growing interest in Brazil to support robust social businesses that utilize technology to serve the BOP.

By encouraging more meetings like these, ANDE and its partners plan to continue working for the development of this ecosystem, promoting new partnerships and projects.

ABOUT THE ORGANIZERS

The Aspen Network of Development Entrepreneurs (ANDE) is a global network of organizations that propel entrepreneurship in emerging markets. ANDE members provide critical, financial, educational, and business support services to small and growing businesses (SGBs) based on the conviction that SGBs will create jobs, stimulate long-term economic growth, and produce environmental and social benefits.

Ultimately, we believe that SGBs can help lift countries out of poverty. ANDE is part of the Aspen Institute, an educational and policy studies organization. Launched with 34 members in 2009, ANDE now comprises over 200 members who collectively operate in more than 150 countries.

The first corporate foundation in the U.S. to be endowed with pre-IPO stock, eBay Foundation was established in 1998, underscoring the company's longstanding commitment to philanthropy. Over the years, eBay Foundation has extended its commitment to creating economic opportunity through strategic investments in disruptive new initiatives working toward enabling all people, in developed and developing countries alike, to participate in the economy. An example of that is "The Opportunity Project", an initiative that provides professional support for small entrepreneurs. The Foundation also engages eBay Inc. employees and supports their pursuit of charitable giving and volunteerism through its GIVE Team program.
The Foundation has contributed more than $30 million to nonprofit organizations worldwide and has consistently been ranked in a list of the top corporate philanthropists in Silicon Valley.

Since the early '90s, the Entrepreneurial Citizenship Institute (ICE) is a social organization that works towards the promotion of innovative initiatives that leverage social impact for low-income populations.

The Institute works in two priority areas: (I) Social Finances and Social Businesses, (II) Local Strengthening. Beyond this, it has two transversal axes: (a) Innovation and Knowledge Dissemination and (b) Business Mobilization and Inter Sectorial Articulation.

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