Resilient Cities, Smart Citizens

A five-day workshop and seminar in Rio

During the Dutch presidency of the EU, the Dutch consulate in Rio de Janeiro and the Rio Prefeitura brought together designers, civil servants, citizens and entrepreneurs for a week-long design workshop and a one-day seminar. They prototyped new designs and approaches to transforming cities, by using and enhancing the power of its citizens to take positive action.

The iniative grew out of the Amsterdam Smart Citizens Lab, launched by Waag Society. In the Smart Citizens Lab, citizens explore tools and applications to map the world around them.

What was it about?

Technology is rapidly taking center stage in our societies. Appliances, houses, cars and cities are becoming connected and "smart". This can be a boon to people, but also a threat to their agency, freedom, privacy and sense of belonging. To enhance agency and resilience in the face of serious transformations, crises and opportunities, we need more playful and creative minds, a fearless "hacker" and designer mentality, and skills to deconstruct and appropriate technology.

A growing group of Smart Citizens takes the future of the places in which they live, work and play into their own hands. They become "smart" by mastering and sharing technologies that help them to express themselves, connect to others, share resources and ideas, and reflect so they can decide the best course of action. This takes knowledge, stamina, access to tools and a network of similarly motivated people. A large number of labs – like Fab Labs, Wet Labs, Maker Spaces and Code Clubs – are the places where this is happening at an increasingly massive scale.

About

The Question

How can cities around the world become more resilient to the physical, social, and economic challenges that are a growing part of the 21st century? How can we enable citizens to be at the center of the solutions? What can design and creativity bring to the table? And how can city governments find new ways to collaborate with these new actors? Can we facilitate a new economic model that helps to foster digital social innovation and entrepreneurship?

During the Dutch presidency of the EU, the Dutch consulate in Rio de Janeiro and the Rio Prefeitura brought together designers, civil servants, citizens and entrepreneurs for a weeklong design workshop, an exposition and a seminar. They prototyped new design and approaches to transforming cities, by using and enhancing the power of its citizens to take positive action.

The Programme

The programme was hosted by the Istituto Europeo di Design (IED) and Waag Society, Institute for Arts, Science and Open Technology, in collaboration with the Dutch Consulate and Rio Prefeitura. It took place at the historical Cassino Da Urca, an amazing part of the Brazilian heritage, which IED has been restoring and renovating for the last six years.

The programme was supported with financial contributions from the Dutch Fund for the Creative Industries, and additional contributions from Olabi Lab, FGV and Swissnex.

Introduction

Technology is rapidly taking center stage in our societies. Appliances, houses, cars and cities are becoming connected and "smart". This can be a boon to people, but also a threat to their agency, freedom, privacy and sense of belonging. More and more interactions become guided by algorithms that are hidden from public scrutiny and

understanding. While people can often use (or "read") the technology that surrounds them (be it a phone, their car, their computers), they can hardly open (or "write") it and put it to their own, sometimes unexpected, use. To enhance agency and resilience in the face of serious transformations, crises and opportunities, we need more playful and creative minds, a fearless "hacker" and designer mentality, and skills to deconstruct and appropriate technology.

A growing group of Smart Citizens takes the future of the places in which they live, work and play into their own hands. They become "smart" by mastering and sharing technologies that help them to express themselves, connect to others, share resources and ideas, and reflect so they can decide the best course of action. This takes knowledge, stamina, access to tools and a network of similarly motivated people. A large number of labs – like Fab Labs, Wet Labs, Maker Spaces and Code Clubs – are the places where this is happening at an increasingly massive scale. Their visitors are artists, scientists and hackers, together cracking the code of hardware, software and wetware, coming up with outrageous ideas and developing meaningful applications for their own use. In doing so they gain a deeper understanding of the issues and forces that shape our world, and become (once again) the makers of change that our societies dearly need.

Summary

The event was opened Arjen Uijterlinde, Dutch Consul-General in Rio de Janeiro; Han Peters, Ambassador of the Kingdom of the Netherlands to Brazil; Claudia Gintersdorfer, Deputy Head of the European Union Delegation in Brasilia, and Pedro Junqueira, CEO, Center of Operations Rio de Janeiro.

During the seminar, 18 speakers and moderators discussed the current state, threats, opportunities and possible futures of resilient cities and smart citizenship. They talked about resilience and sustainablility related policies in Rio, Zürich, Lisbon and Amsterdam, and best practices and learnings for building resilient transportation systems, participative democracy and designing desires. The results from the smart citizens workshop were presented, as well as insightful examples from Olabi Maker Space, BeMap and the Institute for Technology and Society. Finally, four speakers looked at how the history of Rio could shape its future, the circular economy, the smart energy sector and the need for open, inclusive and hackable cities.

From the many things that were touched upon, a few stand out. First: you can only have a smart, resilient city with smart and resilient citizens. The tools and methods are in place, we just have to use them. Second: big changes are about to happen, or already happening: climate change, ageing, political unrest, massive migration streams, and long-lasting financial uncertainty. We need to act, and we need to do so now. Finally: by learning from international good practices, innovation can take place faster, quicker and to the benefit of all. By sharing learnings and blueprints openly and freely, people can build on each others shoulders and tackle the changes. Seminars like these can help a lot to do so.

Workshop

Programme

Monday, 9 May – Friday, 13 May 2016 at IED Rio

The 5-day Smart Citizens Workshop targeted between 20 to 40 change makers, that have a longitudinal impact on their communities and/or the companies and governmental institutions they represent. Participants learned how to set up their own air, water, noise and weather measurement stations and join a global network of independent Smart Citizens. They built their own sensors out of Open Source hardware components, fabricated their own stationary or mobile gear, visualized, presented and interpreted the data together.

The Smart Citizens Workshop was a blend of sensor technology, digital fabrication, data analysis and environmental activism, bringing together a group of able and motivated participants, being taught by top-notch maker gurus from Waag Society, data-visualization experts of FGV_DAPP, and with access to the IED Labs and the Olabi Fablab.

By the end of the Workshop all classmates were turned into fully equipped and certified smart citizens, capable of measuring and interpreting several environmental parameters. Ready to continue measuring independently at home and train others in their community to help change the places they love based on the insights they get.

Programme at a glance

Day 1: Introduction

Inspiring smart citizen projects

Formation of groups and co-creation of project goals

Best practices in measuring, does and don'ts

Data interpretation: practice with example data sets

Co-creation of measuring strategies

Day 2: Air quality

What existing and correlating data sets are available?

Setting up sensors

Planning group effort

Field research and data acquisition

First reflection on the air quality data

Day 3: Sound

What existing and correlating data sets are available?

Setting up sensors

Planning group effort

Field research and data acquisition

First reflection on the sound data

Day 4: Water

What existing and correlating data sets are available?

Setting up sensors

Planning group effort

Afternoon Field research and data acquisition

First reflection on the water data

Day 5: Visualisation Recapping the group goals and strategies

Recapping the group goals and strategies

Gathering and correlating the data

Co-creation of visualisation and presentation strategy

Afternoon Creating the visualisations

Workshop Tutors

Pieter van Boheemen, Director Waag Fablab and Open Wetlab

At Waag Society, Pieter van Boheemen leads the Fablab Amsterdam, Open Wetlab and Open Design Lab. He develops projects, conducts research and workshops intertwining biotechnology, open innovation and arts. As founder of the Dutch DIY Bio community, he started a group of grassroots bio-technologists passioned about demystifying and democratizing science. He is founder of the international BioHack Academy and instructs, supervises and supports the users of the Waag's biotech lab. His main interest is investigating ecological, social and cultural innovation through the intertwining of open source hardware / software / wetware.

Pieter van Boheemen has a master degree in biotechnology of the Delft University of Technology. He is a former ICT entrepreneur and co-founder of online retail shops. Currently he is cofounder of the molecular diagnostics company Amplino. Before joining Waag Society, he worked as a consultant in science based regional innovation, and was IT security consultant at Accenture.

Taco van Dijk, Software Developer, Waag Society

Taco van Dijk works as software developer at Waag Society since 2008. He develops mobile apps, web applications and other software within our projects. Taco studied social science informatics at the University of Amsterdam and his interest are HCI, privacy & security and (computer) music.
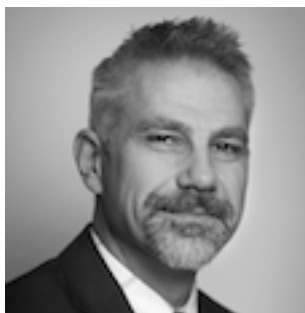
Seminar

Programme

Some of the presentations that were given during the seminar are linked in this page, courtesy of the speakers.

Welcome words

The seminar 'Resilient Cities, Smart Citizen' is a joined initiative of the Dutch Consulate and the Rio Prefeitura. Representatives will welcome the attendees and explain why they decided to address this topic together.

Arjen Uijterlinde, Dutch Consul-General in Rio de Janeiro, Brasil

Arjen Uijterlinde is the Consul-General for the Kingdom of the Netherlands in Rio de Janeiro. Between 2010 and 2013 he represented the Netherlands as ambassador in Azerbeidjan. Before being part of the Dutch diplomatic corps, he headed the Dutch Contingent within the EU Monitoring Mission to Georgia. Between 2008-2009 Uijterlinde worked as a Deputy Director West and Middle Europe / European Council of the Dutch Ministry of Foreign Affairs 2010-2013, ambassadeur in Azerbeidzjan. Just after his role

as a head of International Cultural Policies, at the Dutch Ministry of Education, Culture and Science.

Arjen graduated at the University of Amsterdam on Slavic and East European Studies.

Han Peters, Ambassador of the Kingdom of the Netherlands to Brazil

Mr. Peters has worked as a civil servant for the Ministry of Foreign Affairs of the Netherlands since 1984. In that period he has been stationed in countries as diverse as Kuwait, South Africa, United States (Washington) and Afghanistan, before coming to Brazil. At the Ministry in the Hague, Han also worked on domains like immigration policy and Information and Communications. Prior to his career in government, Han Peters was a teacher in history and economics.

Han studied at the University of Nijmegen, The Netherlands, and obtained his Master of Arts degree in Social and Economic History and a Minor in Economics.

Claudia Gintersdorfer, Deputy Head of the European Union Delegation in Brasilia.

Before her current position, Claudia was Head of the Political, Press and Information Section in the EU Delegation to Uruguay since 2011. At EU Headquarters in Brussels, she worked for DG Enterprise (2000 to 2005) in the area of small and medium-sized enterprises,

entrepreneurship and corporate social responsibility. At the Council Secretariat she was coordinator for the Political and Security Committee (PSC) in Brussels in 2006 and 2007 and from 2007 to 2011 she was Human Rights officer, managing EU human rights policy towards the Americas, with other geographic responsibilities including Iran and the Gulf States and Asia, and regular participation in sessions of UNGA 3rd Committee and the UN Human Rights Council in Geneva. From 1994 to 1999 she worked in Mexico City at the EC Delegation in the area of cooperation and refugee projects.

She obtained an MA in European Area Studies at the University of Surrey, in Guildford, UK, 1990, and a Bachelor of Arts in "Ancient World" at University College London. She also holds a Maîtrise en Politique Internationale at the Université Libre de Bruxelles.

Pedro Junqueira, CEO, Center of Operations Rio de Janeiro

Pedro Junqueira is the Head of Rio de Janeiro's Operations Center. Previously he worked as Chief Advisor for the Transport, Conservation and Services departments within the City. Mr. Junqueira has participated in many significant initiatives in transportation throughout the years, and has served as a liaison between government and civil society to aid the conservation of Rio. He also worked with the city to attract and manage new business, and promote shopping centers. Pedro Junqueira is graduated in Business Administration, with focus on marketing.

Subtheme 'Policies'

Representatives from the Netherlands, Brazil, Portugal and Switzerland will give a short presentation of their countries' vision on the importance of smart, empowered citizens for building resilient cities. During an extensive Q&A the audience can participate in the discussion.

Moderator: Frank Kresin, Research Director, Waag Society

Frank Kresin is responsible for the research programme and chairman of the Management Team at Waag Society. The research programme consists of six research themes, aimed at healthcare, education, culture, society, the government and the business world. Frank has a background as filmmaker and holds a masters degree in Artificial Intelligence from the University of Amsterdam. He has worked as a programme manager at the Dutch Digital University Consortium, and filmmaker functional designer at the University of Amsterdam. He is a board member for ISOC NL and The Mobile City, and currently serves in the steering committees of Erfgoed & Locatie (Heritage & Location) and CineGrid Amsterdam.

Since 2006, he leads the programme group of Waag Society, that develops new projects and initiatives, where consortia are formed and financing is secured. He stood at the start of many projects of Waag Society as well as others and is concerned with themes like Creative Care, Future Internet, Open design and Open Data. Among the projects he (co-)founded are CineGrid Amsterdam, Apps for Amsterdam, Nederland Opent Data, Kies op Maat and Geheugen van Almere. Frank regularly presents and writes on trans-disciplinary research in the creative industry.

Pedro Junqueira, CEO, Center of Operations Rio de Janeiro

Pedro Junqueira is the Head of Rio de Janeiro's Operations Center. Previously he worked as Chief Advisor for the Transport, Conservation and Services departments within the City. Mr. Junqueira has participated in many significant initiatives in transportation throughout the years, and has served as a liaison between government and civil society to aid the conservation of Rio. He also worked with the city to attract and manage new business, and promote shopping centers. Pedro Junqueira is graduated in Business Administration, with focus on marketing.

Tina Billeter Weymann, Sustainability Consultant

Tina Billeter Weymann is Swiss with 15 years of working experience in education, communication, and sustainability in Switzerland, Russia, and the United States. She holds a Master in Environmental Sciences and a Master in Teaching Sciences (both Swiss Federal Institute of Technology, ETH, Zurich). Currently she lives in São Paulo, working as an independent sustainability consultant. Experienced as project manager for private companies, governments, and NGOs, Tina joined the Environmental and Health Protection Service of the City of Zurich in 2008. She implemented innovative projects within the city's energy vision, the so-called 2000-Watts Society. Among other initiatives, she developed Eco-Compass, Zurich's environmental consulting service for SMEs, and lead the Eurocities' working group Greening the Local Economy.

Catarina Selada, Head of Cities Department, INTELI Innovation Centre

Catarina Selada is the Head of Cities Department at INTELI – Intelligence in Innovation, Innovation Centre, located in Lisbon, Portugal. She has been working in several European and national projects on urban development, with a specific focus on smart cities. She is coordinator of the RENER Living Lab – Portuguese Smart Cities Network, composed of 46 municipalities, and responsible for the collaborative platform Smart Cities Portugal. She was also involved in the development of the Smart City Index 2020, which was applied to 20 municipalities in Portugal. She is member of the Advisory Board of Creative Brazil Foundation and member of the Technical Committee of the initiative Benchmarking – Indicators Brazil. Catarina was awarded with the prize "Smart Cities Personality of the Year 2016". She received a degree in Economics and a master degree in Science and Technology Management from the Technical University of Lisbon, Portugal. She is a PhD candidate on "Governance, Public Policies and Innovation" in the University of Coimbra, Portugal.

Subtheme 'Resilient Cities'

Urban resilience is being defined as the capacity of individuals, communities, institutions, businesses, and systems within a city to survive, adapt and grow no matter the circumstances. To build that capacity, collaboration and a shared feeling of ownership and agency by all involved are essential. During the seminar, several internationally renowned experts will share their knowledge and experience on how a city can achieve greater resilience.

Moderator: Luciana Nery, Deputy Chief Resilience Officer, Center of Operations Rio de Janeiro

Luciana Nery has been in the public sector for nearly 20 years, having worked mostly on technology, sustainability and city resilience. Worked for five years as Advisor to the Mayor of Rio de Janeiro. She has co-authored "Rio Resiliente, Diagnóstico e Áreas de Foco", an extensive study aimed at identifying the resilience priorities of the city, prefaced by Mayor Paes and Vice-President Al Gore. Previously, she was Advisor to the CEO of Furnas Centrais Elétricas. Luciana holds a Master's degree in International Business Administration, with focus on strategic and global networks (PUC-Rio and Université of Grenoble, France).

Marco Contardi, Strategic Advisor, FGV Projetos

Marco Contardi has developed his career in the international consultancy company Roland Berger Strategy Consultants. He worked as senior consultant for Latin America Multilateral development banks in the establishment of the Public-Private Partnerships (PPPs) Law in Brazil. Currently, he is strategic advisor at FGV Projetos and he is strongly engaged in the development of business and society shared value projects and in fostering Smart Cites projects in Brazil. He is proposing to introduce Public Private Partnerships and Stakeholder Engagement has an innovative approach to create a new generation of public policies.

Ricardo Ruiz, Project Coordinator, InCiti Research and Innovation for Cities & Federal University of Pernambuco

Ricardo Ruiz is a project coordinator at InCiti – Research Institute on Inovations for Cities/Federal University of Pernambuco and CEO at 3Ecologias, an IT consultancy agency for cultural and educational sectors. Has worked in dozens of Federal, State and Municipal Digital Inclusion programs.

Clarisse Linke, Country Director, Institute for Transportation and Development Policy Brasil

Clarisse Cunha Linke is a Brazilian with 14 years experience in social policy, planning and implementation in Brazil, Mozambique and Namibia. She holds an MSc in Social Policy, NGO and Development from the London School of Economics and Political Science, where was the winner of the Titmuss Prize. She also holds a MBE in NGO and Civil Society from the Institute of Economics, Rio de Janeiro Federal University, Brazil. From 2006-2011, Clarisse was one of the Bicycling Empowerment Network Namibia (BEN Namibia) directors, where she played a key role in the expansion of BEN Namibia's activities, helping it develop the biggest community-based enterprise bicycle distribution network in sub-Saharan Africa. In 2010 she was the winner of the Ashoka Changemakers Challenge "Women, Tools and Technology". Clarisse joined ITDP Brazil in January 2012.

Mark van der Net, Founder, OSCity

Architect and computer programmer Mark van der Net (OSCity.eu) lives and works in Eindhoven. He is fascinated by the way cities daily operate as social technology and collective intelligence. He uses information technology to explore, visualize and understand these urban processes. The goal is a new way of urbanism, which could facilitate a changing society.

With Renny Ramakers from Droog Design (droog.com) he created Design+Desires (designdesires.org), an online platform for people-centered urban research and design which contains Social City; a virtual city which slowly grows based on the needs and desires of people all over the world.

Subtheme 'Smart Citizens'

A city in its essence is a collection of systems and institutions with the sole aim to service and facilitate the lives, labor and wellbeing of its inhabitants. A resilient city can therefore only be achieved by closely engaging and collaborating with those inhabitants. Leaders from several bottom up initiatives will explain how they empower citizens to take (more) control over their urban environment and achieve improvements for their communities and the city at large.

Moderator: Pieter van Boheemen, Director, Waag Labs

At Waag Society, Pieter van Boheemen leads the Fablab

Amsterdam, Open Wetlab and Open Design Lab. He develops projects, conducts research and workshops intertwining biotechnology, open innovation and arts. As founder of the Dutch DIY Bio community, he started a group of grassroots biotechnologists passioned about demystifying and democratizing science. He is founder of the international BioHack Academy and instructs, supervises and supports the users of the Waag's biotech lab. His main interest is investigating ecological, social and cultural innovation through the intertwining of open source hardware / software / wetware.

Pieter van Boheemen has a master degree in biotechnology of the Delft University of Technology. He is a former ICT entrepreneur and co-founder of online retail shops. Currently he is cofounder of the molecular diagnostics company Amplino. Before joining Waag Society, he worked as a consultant in science based regional innovation, and was IT security consultant at Accenture.

Gabriela Augustini, Founder and Director, Olabi Makerspace

Gabriela Agustini is founder and director of Olabi Makerspace, a social enterprise focus on encouraging the use of new (and old) technologies for social change. Based in Rio de Janeiro, Brazil, she has traveled more than 15 countries in the Americas, Europe, Africa, Oceania working on projects or speaking at events related to innovation. She is currently Professor of Culture and Technology at Candido Mendes University, Visitant Professor of Entrepreneurship at Fundação Getúlio Vargas, both in Rio. And also co-organizer and co-author of "De baixo para Cima"("Bottom-up"), a book of articles about digital culture, new economy and peripheries in Brazil. Her experience ranges from the public sector to small startups and private companies. She formed part of the House of Digital Culture, a collective pioneer in the discussion of new technologies in Brazil, where she worked as a curator and executive director of

CulturaDigital.Br International Festival held in Brazil in 2011.

Chloe Dickson, Co-Founder, BeMap

Chloe is co-founder of BeMap, an air pollution mapping device for cyclists. She is a former mountain biking and track cycling champion. With her team, she won the iCan international contest in sensor technologies in 2015. She studies microengineering at EPFL (Switzerland) and teaches robotics to children. Chloe is also active in scientific outreach and equality programs.
Chloe has been participating in conferences and workshops around the world in technologies, leadership, women empowerment and sustainable development.

Ronaldo Lemos, Founder and Director, ITS Rio

Ronaldo Lemos is a lawyer, founder and director of the Institute for Technology & Society of Rio de Janeiro (ITSrio.org). He is professor of law at the Rio de Janeiro State University (UERJ). He is a non-resident visiting scholar with the MIT Media Lab, and its liaison officer for Brazil. He has a master in laws degree from Harvard University, and a doctor in laws degree from the University of Sao Paulo, and has been a visiting professor and scholar at Princeton University and Oxford University. He is one of the architects of the "Marco Civil da Internet", a bill of rights for the Internet passed into law in Brazil in April 2014 protecting freedom of expression and privacy online, as well as network neutrality. He writes weekly for Folha de Sao Paulo, a major national newspaper in Brazil, and hosts weekly at Globonews, a national cable news channel, a TV show focused on

innovation. He is a board member of various organisations, including the Mozilla Foundation and AccessNow. He has been appointed a "Young Global Leader" by the World Economic Forum and a fellow with Ashoka.

Subtheme 'Visionaries'

How can the concept of resilient cities and the role of smart citizens within it help to bring about massive social change, more economic equality, and help create an urban environment that is healthy and sustainable? A number of visionaries with backgrounds from education, entrepreneurship, technology and government will share their views on the future.

Moderator: Fabio Palma, Director, Istituto Europeo di Design

Fabio Palma, an Italian from Campobasso, is the director of IED Rio – Istituto Europeo di Design of Rio de Janeiro. In addition he works as an illustrator and cartoonist for Italian and Spanish newspapers, websites and magazines.

Fabio graduated in Communications Science from "La Sapienza" University in Rome and specialised in Institutional and Business Communication. He earned his M.Sc. in Scientific and Environmental Communication from Pompeu Fabra University of Barcelona (Spain), and his M.Sc in Sustainability from Fundação Getúlio Vargas, in Rio de Janeiro (Brasil).

He worked in Italy, UK, Spain and Brazil for several international companies, institutions and NGO's as a Head of Education and Training, and as a Head of Communication. Before that Fabio worked as a teacher of Communication Sociology and Project Communication and headed the Advanced Studies department at IED Barcelona .

Fabio moved to Rio de Janeiro in 2010 to assume the role of Director of IED Rio, that will also open the Design Innovation Center of IED Group. At the Council of the Municipality of Rio de Janeiro he is in charge of developing the Strategic Plan of the City of Rio.

Washington Fajardo, President, Rio World Heritage Institute and Mayors' Special Advisor for Urban Issues

Washington Fajardo is an architect and urban planner. He is currently the President at Rio World Heritage Institute and the City Council of Protection of Cultural Heritage, as well as the Mayor's Special Advisor for Urban Issues. He is the author of the architectural design of Arenas Cariocas; author of architectural design to revitalization of Imperator – Cultural Centre João Nogueira; author of the mechanism that devoted 3% of the value of CEPACs for Cultural Heritage in Porto. He is also responsible for the creation of the Pro-APAC notice and Carioca Design Centre in Tiradentes Square.

Bruno Cecchettim, Head of Innovation, R&D and Market Business Development, Enel Brasil

Luisa Santiago, Managing Director, Ellen MacArthur Foundation

Luisa joined the Ellen MacArthur Foundation to implement and lead the Circular Economy 100 Brazil Programme (CE100 Brazil), leveraging her expertise and network in the Brazilian market to expand the successful model of the global CE100 Programme to its first satellite location designed to unlock local opportunities for the circular economy in the country.

Luisa has over 7 years' experience in consulting in strategy and sustainability areas, working in collaboration with businesses, governments and the third-sector. This role has given her the opportunity to experience and learn from grass-root projects embedded in the linear model, including spending months in the Amazon and in the Middle East working with sustainability projects in mining, with some time also spent in Africa involved in environmental projects in the oil & gas industry. Luisa has also conducted an extensive study into 'inclusive recycling' of waste (that is, waste recycling with economic participation of the informal waste-pickers) in 15 countries in Latin America, as well as a deep collaboration of over 1 year with the City of Rio de Janeiro in building its city resilience strategy. Luisa holds a Masters in sustainable development practices, having presented the first academic essay in circular economy in Brazil.