



# BIC Brazil Extended Working Group (EWG) Launch Workshop on Management Strategy, Structure and Approach on Building International Cooperation on Research & Innovation in Trustworthy ICT

held on 22<sup>nd</sup> October, 2013

hosted by Instituto de Tecnologia de Software – ITS,  
São Paulo, Brazil.



**In cover photo (L-R):** Prof. Marcelo Zuffo, University of São Paulo, Prof. Dr. Marcos Antonio Simplicio Junior, Universidade de São Paulo – Escola Politécnica, Dr. Jean Everson Martina, Universidade Federal de Santa Catarina, Prof. Jacob Scharcanski, Federal University of Rio Grande do Sul Porto Alegre, (UFRGS), Prof. Ricardo Dahab, University of Campinas, Prof. Diego F. Aranha, University of Brasília, Prof. Priscila Solis-Barretto, University of Brasília, Mr. James Clarke, Waterford IT, BIC coordinator, Prof. Antônio Marcos Alberti, Instituto Nacional de Telecomunicações (INATEL), Prof. Sergio Kofuji, Univ. of São Paulo. Missing from Photo: Guillaume Ernst – IRD (Brasilia), Paulo Siqueria– CNPq (Brasilia), Paulo E. Lovato, IBE (Instituto Brasil Europa).

**Report authors:** James Clarke, Priscila Solis-Barretto with contributions from all participants.



## Executive Summary

The BIC project has been promoting a longer term structure for a more strategic multi-lateral cooperation going beyond the tactical bi-lateral approaches used to-date, and the new model proposes an in-country EWG (EWG = Extended Working Group) composed of experts in all fields associated with Trustworthy ICT that have an interest in carrying out international cooperation with their peers in other countries. The main objective of the EWGs are to intensively scope the topical areas and ideas for international cooperation (INCO) projects in Trustworthy ICT, coordinate with the EWGs of other countries for the purpose of research cooperation and to promote these ideas to be included in the upcoming research Work Programmes (WPs). Further information on this structure can be found at [http://www.bic-trust.eu/files/2013/01/Clarke\\_Sharma\\_INCO\\_Strategy\\_BIC\\_Sept20121.pdf](http://www.bic-trust.eu/files/2013/01/Clarke_Sharma_INCO_Strategy_BIC_Sept20121.pdf).

The Brazil – EU cooperation to date has been quite fruitful with two joint calls already (2010 and 2012) and a third one planned within call 1 of Horizon 2020. A number of the newly formed BIC EWG members were part of the Brazil and EU delegation involved in the decision making process for the Brazil – EU calls already, and understand the decision making process of the funding bodies listening to the researcher community about what priority topics should be selected for joint calls of mutual benefit. With this backdrop, it is understandable that the launch meeting of the BIC Extended Working Group of Brazil was well attended with an enthusiastic group of researchers.

Coupled with the co-location of the Research Brazil Ireland (RBI) launch and showcase event held on 21<sup>st</sup> October in the University of São Paulo, the BIC EWG workshop was very successful. The full terms of reference and agenda can be found at [http://www.bic-trust.eu/files/2013/10/BIC\\_EWG\\_22Oct2013\\_agenda.pdf](http://www.bic-trust.eu/files/2013/10/BIC_EWG_22Oct2013_agenda.pdf).

A number of potential key research themes in Trustworthy ICT earmarked for international cooperation between Brazil – EU cooperation were discussed, agreed and ratified during the EWG meeting. The research themes, falling under the main categories of: Research involving Cyber Security, Future Internet (FI) Data and Information Provenance (source/birth of data), Future Internet (FI) Data and Information privacy, Digital Identity Management, and Trust Management for emerging countries were arrived at from an earlier analysis carried out within the Working Groups of BIC.

The launch meeting participants gave their views on these research themes, which will be incorporated into the final recommendations of the BIC project and also used as a starting point for the terms of reference (ToR) of the Brazil EWG. Additional research items within these key themes were highlighted by the participants including:

- Clean slate approaches for the Future Internet and the additional requirements on trust, privacy and security;
- Stronger emphasis on future cryptography research for real life situations using smart technologies/Internet of Things;
- Security for embedded systems;
- The use of biometric technologies for privacy protecting identity management;
- Integration of social-technical / human oriented approaches for dealing with new threats;
- Securing open data (e.g. government based services) whilst protecting privacy of citizens;
- Trusting source of data and information being passed to citizens during large scale events over wide areas (e.g. large stadiums);
- Advanced privacy protecting cyber forensics for dealing with cyber crime, amongst others.



***“The BIC EWGs will collectively be a much louder voice when advocating the priority topics for cooperation in the future work programmes and calls. Furthermore, it is also hoped that the EWG members could work together productively in forming strong project ideas up-front, plugging gaps and, at the same time, reducing overlaps, which could lead to a much more productive and useful work programme for the future, whether it be within Horizon 2020, or other relevant programmes, including those in Brazil”,*** EU Co-Chair, Mr. James Clarke, emphasised in his closing remarks.

Professor Ricardo Dahab of the University of Campinas (UNICAMP), has kindly agreed to take on the role of steering the EWG of Brazil and his first plans are to increase membership with eminent researchers from all over Brazil in the specific research themes identified by BIC WGs as above. Professor Dahab suggested publicising the BIC EWG work at the upcoming 13<sup>th</sup> edition of SBSeg event being held in Manaus, in the Amazon Region, on 11-14<sup>th</sup> November, 2013. Prof. Dahab appreciated that the BIC-EWG event was a very good start for BIC objectives given the large attendance from the research communities around Brazil, along with the enthusiasm exhibited and their in-depth views and presentations. There were very significant and valuable suggestions as can be seen in the report and event web site<sup>1</sup>.

***“It was very encouraging to hear today the discussions about the synergy between the approaches and collaboration plans of the different international cooperation projects involving Brazil and the EU already: from Research Brazil Ireland (RBI), Instituto de Estudos Brasil Europa – Institute for Studies Brazil Europe (IBE), B.BICE+ and, of course, BIC”,*** Brazil Co-chair, Professor Solis-Barretto emphasised in her closing statement.

Mr. Clarke concluded by thanking the local organisers of the BIC Brazil EWG launch event, especially spearheaded by BIC International Advisory Group member, Professor Priscila Solis-Barretto of University of Brasilia with the support of Dr. Paulo Siqueria of CNPq and European Commission member Dr. Augusto De Albuquerque, and especially Sr. Jaime Luis Stabel and the staff at the [Instituto de Tecnologia de Software \(ITS\)](#)<sup>2</sup> in São Paulo, Brazil for allowing us to use their excellent facilities.

A special word of thanks also went to the coordinators of the Research Brazil Ireland (<http://www.RBI.ie/>) project in both Ireland and Brazil for their strong support and allowing the BIC EWG workshop to be co-joined with their prestigious [launch event](#)<sup>3</sup> held on 21<sup>st</sup> October 2013 at the University of São Paulo. This cooperation enabled a very strong attendance both from the technical perspective and networking perspective from all over Brazil to both of our events.

<sup>1</sup> <http://www.bic-trust.eu/events/bic-brazil-ewg-launch-meeting/>

<sup>2</sup> <http://its.org.br/en/o-instituto/quem-somos/>

<sup>3</sup> <http://www.dcu.ie/research/highlights/2013/october/research-brazil-ireland-programme-launch.shtml>

## Table of Contents

Executive Summary .....	2
Welcome Address of Sr. Jaime Luis Stabel, Instituto de Tecnologia de Software (ITS).....	5
Key Note Address on promoting coordination of EU/MS/AC initiatives with Brazil via B.BICE+ by Dr. Guillaume Ernst – IRD (Brasilia) (in cooperation with Dr. Paulo Siqueria– CNPq (Brasilia)) .....	5
Keynotes Address of Mr. James Clarke, Waterford Institute of Technology, BIC Coordinator, Ireland (in cooperation with Professor Priscila Solis-Barretto, University of Brasilia) .....	7
Brazil – EU Priority research areas in Trustworthy ICT .....	10
Presentations of invited Participants.....	19
Conclusions.....	22
Acknowledgments .....	23
Further reading.....	23
Further information.....	23
Appendix 1. Agenda BIC – Brazil EWG Launch WorkShop .....	24
Appendix 2. List of Attendees .....	25
Appendix 3. Photographs.....	26

## Welcome Address of Sr. Jaime Luis Stabel, Instituto de Tecnologia de Software (ITS)

Sr. Jaime Luis Stabel extended a warm welcome for all the participants at the BIC Extended Working Group Launch workshop to the [Instituto de Tecnologia de Software \(ITS\)](#) in São Paulo.

Sr. Stabel explained the history of the Institute of Software Technology – ITS, whose activities began in March 1997 as a non-profit civil association. ITS is a joint initiative of private companies, universities, associations and government agencies. The objectives of ITS, in the pursuit of goals as articulated with its affiliates, are mainly :

- Developing projects of R&D and Innovation;
- Managing Information Technology Projects and Communication;
- Modelling and Simulation processes;
- Software Quality;
- Promoting Innovation in small and medium companies;
- Support the capitalization of software companies;
- Support Business Promotion;
- Training the software companies.

As two of the main drivers of ITS are to promote and encourage Research and Development and Innovation and Markets, it is very appropriate that the BIC project's EWG would take place here as they are both planning on integrating their results with fostering international collaboration within the new research programme of Horizon 2020 (2014 – 2020), whose main mission points are also Research & Innovation.

Sr. Stabel officially opened the EWG workshop and wished the participants a very successful launch event.

## Key Note Address on promoting coordination of EU/MS/AC initiatives with Brazil via B.BICE+ by Dr. Guillaume Ernst - IRD (Brasilia) (in cooperation with Dr. Paulo Siqueria- CNPq (Brasilia))

The context and rationale for strong international cooperation between Brazil and EU research was presented. Firstly, there is an important bi-lateral trade and investment flows between EU and Brazil and secondly, Science, Technology and Innovation (STI) is at the heart of sustainable growth strategies in both Europe and Brazil. International cooperation is a key element of these due to the on-going internationalization of the Brazilian STI system; the already well-established relations with EU, annual meetings of the JSTCC and important participation within the FP7 programme to date with two joint calls already and a third on the way in Call 1 of H2020; and existing bilateral agreements and numerous programs between Brazil and EU Member States with, in many cases, common thematic and approaches. A good example of this was the Research Brazil - Ireland event held the day before on 21<sup>st</sup> October 2013 between Ireland and Brazil. A number of common themes between Brazil and the EU have been discussed viz ICT and innovation, renewable energy, climate change/environment, food and agriculture, and health.

The shared vision of EU/Member States (MS)/Associated Countries (AC) expresses that there is need for better coordination and a more targeted cooperation with an expressed priority oriented towards innovation. It is an evolving context at the EU level, with the Innovation Union Initiative, H2020, including new rules for participation of emerging



countries. It is also a challenging international context, in which there is a more structured South-South cooperation, especially amongst BRICs countries, and of course, the constraints related to the economic crisis.

It was within this context that Brazilian Bureau to Enhance the Bilateral Cooperation between Brazil and Europe (B.BICE+) project started in 2012. The European partners are the Development Research Institute of France (IRD), the International Bureau of the German Federal Ministry of Education and Research (BMBF) and the Greek Foundation for Research and Technology Hellas (FORTH). The Brazilian partners are the National Council for Scientific and Technological Development (CNPq), the Fundacao Universidade de Brasilia (UnB) and Associa  o Nacional de Entidades Promotoras de Empreendimentos inovadores (Anprotec).

B.BICE+ aims to improve the bi-lateral cooperation and to support policy dialogue on Science, Technology and Innovation among the European Commission, the EU Member States (MS), Associated Countries (AC) and Brazil. It is a successor project to both the B-BICE and APORTA projects. It also has a quarterly newsletter and a website and developed a Competency Map of the Brazilian Institutions created to help expand the knowledge of the Brazilian competencies in the EU. In the new phase of the project, it also has a work package for the relations between the EU and the Member States as well as enhancement of SME's and enterprise participation in the new Horizon 2020 Programme.

The major components of B.BICE+ are the following:

- Awareness Raising; Promotion of sustainable partnerships between EU and Brazilian actors of the whole research-to-innovation chain;
- Support to coordination of EU/MS/AC STI cooperation with Brazil at programme level;
- Placing Innovation at the heart of an overarching policy objective for EU-Brazil cooperation;
- Support policy dialogue in ST&I between UE and Brazil;
- Monitoring of STI cooperation between EU and Brazil (observatory, bilateral cooperation scoreboard ...);
- Identify and implement, with EU MS/AC collaboration, concrete mechanisms, at programmes/project level, for research, and innovation.

There is a component within B.BICE+ dedicated to supporting EU/MS/AC interactions (Work Package 2). Within WP2, the following activities are being carried out:

- Consultation to identify niches for coordination (August 2013), which are niche areas in which there is a willingness from MS to cooperate and where concurrency of MS&AC is not a threat for coordination;
- Feasibility study for a joint liaison office of EU/MS/AC Research and Innovation organizations in Brazil (Ongoing with other BILATs);
- Roadmap for the coordination (Workshop, 9 – 10 October 2013), which will facilitate the dialogue between the stakeholders and measure their willingness to contribute to the coordination between bilateral programmes, identify strengths, weaknesses, opportunities and threats linked to the coordination of bilateral initiatives, and identify possible instruments as models for joint activities;
- Launch of the Joint action taskforce on coordination – JAT (October 2013 – September 2015, at least two meetings/year+ videoconferences)
  - ✓ In close cooperation with the EU delegation to Brazil;
  - ✓ Follow-up of the roadmap;
  - ✓ Implementation of joint activities.



Some specific activities where EU/MS/AC coordination will be promoted through the JAT include the following:

- Seed funding for research collaborative projects; one orientation proposed is to link bilateral programmes and European/intergovernmental mechanisms (examples: Marie Curie, thematic ERA-NET, COST: existing or new projects)
  - Concept note to be discussed with EU/MS/AC and Brazilian institutions (August 2013);
  - Launch of first call (Nov/Dec 2013).
- Exchange and twinning(s) involving Research & Innovation actors:
  - Concept note (August 2013);
  - Launch of first call (Dec/Jan2014).

The coordination of EU/MS/AC as a crosscutting dimension is also being addressed by B.BICE+ with an EU/Brazil STI cooperation Observatory: include Brazilian participation under EU/MS/AC programmes; running of one day courses: opportunities under EU/MS/AC bilateral programmes; an online guide to innovation: benchmarking of the on-going EU/MS/AC initiatives and a EU-BR Forum on Innovation and Technology (next one in Belem, Sept 2014). The EU-BR Forum will incorporate Business-to-Business encounters, combined with a workshop on best practices on EU-Brazil technology transfer, and a first high level round table on Innovation and IPR.

A second B.BICE+ EU-BR Forum on Innovation and Technology will be held in Hannover, Germany during April 2015 and a second High level Round Table on Innovation will be held in Marseille, France during September 2015.

The project will be monitoring EU participation, including MS/AC participation, within other Brazilian programmes (Science Without Border, INCT, Universal).

**In conclusion, the B.BICE+ task force can become an important means for the BIC EWG Initiative!**

## **Keynotes Address of Mr. James Clarke, Waterford Institute of Technology, BIC Coordinator, Ireland (in cooperation with Professor Priscila Solis-Barretto, University of Brasilia)**

Mr James Clarke, on behalf the BIC project, welcomed all participants in the first country-specific Extended Working Group (EWG) forming session in Brazil. In his welcome note, Mr. Clarke outlined the BIC Project, its objectives and the progress made so far, a brief about the International Cooperation (INCO) management strategy that has emerged during the previous BIC workshops and the envisaged objectives and role of Core Working Group (CWGs), EWG and Special Function Groups (SFGs). The full slide set can be found at [http://www.bic-trust.eu/files/2013/10/Clarke\\_SolisB\\_EWG.pdf](http://www.bic-trust.eu/files/2013/10/Clarke_SolisB_EWG.pdf).

Mr. Clarke explained the purpose and structure of the EU Framework Programme 7 BIC project, whose main goal is to build cooperation between the EU and the international programme agencies and researchers in India, Brazil and South Africa within the focus areas of Trustworthy ICT, including trust, privacy and security.

The project is also working with the communities in a coordinating role in reflecting on a longer term strategy for international cooperation (INCO). Since international projects, particularly those addressing research on “Trustworthy ICT” require interactions amongst all participant countries to share the information, resources, etc., the approach for the formal



interactions, flow of information and smoothness of actions, it is natural that the groups and sub groups working for the project work closely with each other. Accordingly, at an international management level, it requires a change in approach from the existing bi-lateral approach i.e. EU-Brazil, EU- India, EU- South Africa, -U.S, -Japan, ... to a multi-lateral approach where each participating country develops a formal system for direct multi-lateral communication and interacts with each other besides interacting centrally as well.

During a BIC workshop held in June 2012 at Brussels, the need for a structured management strategy in order to effectively achieve INCO was recognised and accepted. The proposed structure extended beyond the original BIC schema of International Advisory Group (IAG) and Core Working Groups (CWGs), and evolved to set up additional Work Groups in the hierarchy. This approach was subsequently presented before a European Commission representative in the subsequent IAG workshop at Lisbon, Portugal in Nov 2012. It was duly appreciated and ratified there.

In this proposed structure, as shown in Figure 1, Extended Working Groups (EWGs) are defined as the country specific arms of the Core Working Group (CWG) of BIC.

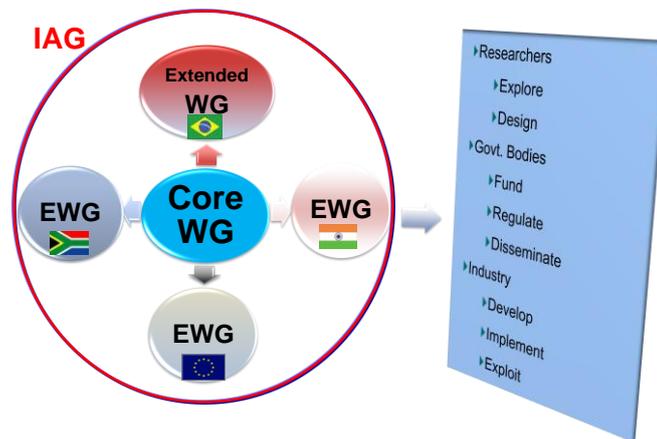


Figure 1: IAG & Work Groups

Although not part of the original structure of the BIC constituencies, the newly formed EWGs are envisaged to play a crucial role for the BIC objectives on developing a longer term INCO strategy on mobilising towards multi-lateral research and innovation on the priority research areas in Trustworthy ICT. The EWG role, in essence, is to:

- Identify, analyse and compile all the projects being initiated by the institutes and Industry of the country and recommend for suitable inclusion/ funding by respective bodies (EU, Govt. of Brazil, India, ...);
- Work closely with the EWGs of other member countries to facilitate multi-lateral cooperation of various projects of the country duly identified;
- Form Special Function Groups (SFGs) on project to project basis where SFGs are envisaged as specialists at functional level.
- Most importantly, create a strong inertia and momentum together as a whole body of researchers, in order to strongly promote the vital research topics that should be funded in future calls such as the EU’s Horizon 2020 (H2020) or other national or international programmes.



The first meeting of the Brazil EWG had the following objectives:

- Keynote speakers from BIC project and other international cooperation agencies and initiatives;
- Definition and Explanation of the terms of reference of the Brazil External Working Group;
- The priority research topics for consideration in Trustworthy ICT requiring international cooperation will be highlighted and reviewed by the participants;
- Members will be able to introduce their work and share their views on the best ways forward for the Brazil Working Group of BIC;
- A member will be nominated to provide a steering role within Brazil for this work;
- Future actions will be discussed, including recruitment of additional members with expertise in the priority topics, upcoming events, future calls for research programmes (H2020, ...).

Explaining the role of the International Advisory Group (IAG) of the BIC project, Mr. Clarke described that the IAG is a forum bringing together the representatives of the countries from the earlier INCO-Trust<sup>4</sup> countries (U.S., Canada, Australia, Korea, and Japan) and the BIC countries (India, Brazil and S. Africa) in a more strategic way, including the development of a longer term strategy for future cooperation in programmes such as Horizon 2020. The IAG, which is comprised of government programme management and researcher community members already engaged in International cooperation also assist in the building of the working groups (WGs) to enable BIC to structure relationships and linkages and facilitate contacts for theme based workshops or other networking events.

Mr. Clarke proceeded to present the results of the interactions with the Brazil – EU collaborations in the WGs and detailed the priority research topics that have been identified already. While these were not entirely exhaustive, Mr. Clarke explained that the topics have been ranked according to the interest generated in the discussions by the participants and the meeting participants received the topics before the meeting so we could discuss and agree whether these were the preferred topics to promote for cooperation in Horizon 2020 or other programmes, such as Brazil funded research programmes. Mr. Clarke presented the topics generated by the participation of eminent researchers from all over Brazil, namely: Research involving Cyber security; Future Internet (FI) Data and Information provenance (source/birth of data); Future Internet (FI) Data and Information privacy; Digital Identity Management; and Trust management for emerging countries. More details can be found in a dedicated section below.

Mr. Clarke further explained that in addition to scoping research topics for collaboration, the BIC project has been promoting a longer term structure for a more strategic multi-lateral cooperation going beyond the tactical bi-lateral approaches being used till date. A model was proposed by the IAG members, especially led by members from India including Mr. Abhishek Sharma, advocating that the current structure of Working groups in BIC wasn't enough to plan ahead for this multi-lateral strategy, and instead they proposed another more extensive model, with the inclusion of an in-country Extended Working Group (EWG) composed of experts in all fields associated with Trustworthy ICT that have an interest in carrying out international cooperation with their peers in other countries. The main objective of the EWGs are to intensively scope the topical areas and ideas for international cooperation

<sup>4</sup> INCO-Trust, <http://www.inco-trust.eu/>

(INCO) projects in Trustworthy ICT and to promote these ideas to be included in the upcoming research Work Programmes (WPs). This structure has been presented and refined at subsequent BIC meetings and we are now in the process of EWGs being implemented in all BIC countries.

Mr. Clarke thanked all of the participants, especially Professor Priscila Solis-Barretto of University of Brasilia for her tireless efforts in organising the launch EWG workshop along with the BIC project and thanks to Prof. Lisa McInerney from Dublin City University, the coordinator of the Science Foundation Ireland funded Research Brazil Ireland (RBI) project, CNpQ and the European Commission and especially special thanks to the local hosts at Instituto de Tecnologia de Software – ITS for allowing us to use their excellent facilities for the EWG workshop. Mr. Clarke concluded his talk by saying that the other BIC countries, India and South Africa, already are undertaking similar activities and they will all be ready to work together in the very near future as we approach Horizon 2020.

## Brazil – EU Priority research areas in Trustworthy ICT<sup>5</sup>

The following short report summarises in more detail the key research themes in Trustworthy ICT that have been discussed and earmarked for Brazil – EU collaboration within the BIC Project.

### 1. Research involving Cyber Security

**Background:** on November 30, 2012, Brazilian President Dilma Rousseff enacted two new laws that change the Penal Code and introduce new crimes related to the Internet and electronic communications.

The first law (No. 12.735) provides for granting judicial police departments to organize, in accordance with regulations, new organs and specialized teams to fight against criminal activities involving computer networks, communication devices and systems information.

The second law (No. 12,737) criminalizes the use of data obtained from debit and credit without the permission of the owner. This practice, considered as the falsification of a private document, is now punishable on conviction of one to five years in prison and a fine.

In 2012, Brazil adopted the White Paper to Guide Future Defense Priorities. The document foresees the creation of a full-fledged Brazilian Center for Cyberdefense (CDCiber) by 2015. The White Paper stresses that “the protection of cyberspace covers a wide range of areas such as training, intelligence, scientific research, doctrine, preparation and operational employment and personnel management. It also comprises protecting their own assets and the ability to networked operations [8].

**Research Challenges of Mutual Benefit:** Within BIC, the following activities have been identified where Brazil – EU collaboration could provide mutual benefits related to cyber security:

- **Physical and cyber worlds:** With the emergence of wireless network sensors, IoT, and robots, the interaction of physical and cyber worlds brings in human social aspects into the digital world. It is therefore necessary to first understand the cultural framework of all the populations and all stakeholders.

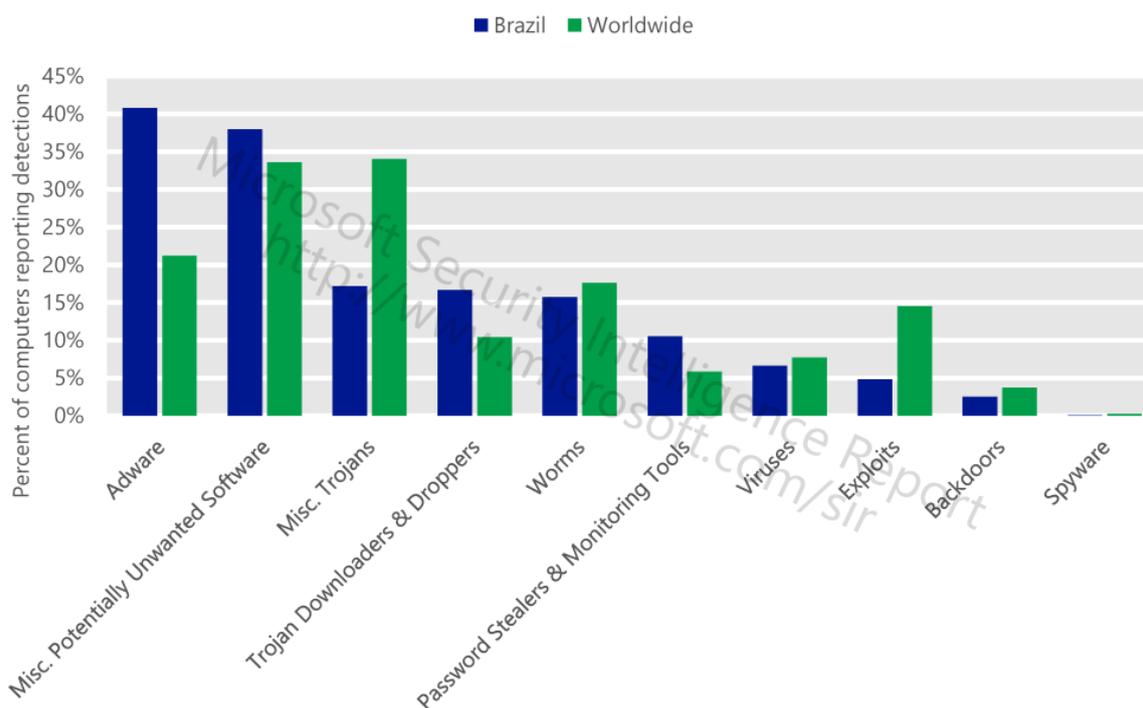
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<sup>5</sup> These topics are not meant to be exhaustive; however, they derive from the activities within the Building International Cooperation (BIC) for Trustworthy ICT FP7 Project <http://www.bic-trust.eu/>. Please see the project impact section <http://www.bic-trust.eu/impact/> for more detailed reading materials on these topics.



- **Regulations:** Appropriate regulations are needed in order to coordinate efforts from different stakeholders to try to develop a roadmap of cyber-security practices that will be sharpened in the future in order to ensure a leading role of Europe and Brazil together in the digital ecosystem.
- **International Data Exchange for cyber security:** Secure data exchange and sharing for analysis and CERTs working well together. Sharing of information with the stakeholders of the digital ecosystems is becoming a milestone in combating cybercrimes. An increasing number of regulators are, therefore, developing new rules for enforcing data sharing (e.g. data breach notification by ENISA). Measures should also allow the data exchange between EU and Brazil to analyse cybercrime and share experiences.
- **Threats, attackers and hackers:** There is a need to work together on addressing the international data exchange and sharing of information and intelligence on cyber-attacks for a free flow of the information in a secure manner. Threats landscape is constantly changing. To collectively fight against cyber-threats more effectively, a coordinated response between EU and Brazil is required to understand the emerging threats and identify solutions and create a roadmap of actionable activity schemes.
- **E-governance, information sharing, sharing of best practices,** surveillance and analysis, joint exercises in cyber security and training, and joint research activities to foster collaboration between international and national, agencies as well as the private sector, are required. Multi-polar cyber security governance is needed for the Brazil context.
- **Cybercrime** (virus in email, botnets, Trojan in webpage, fraud in ecommerce, e-robbery in e-banking transaction, identity theft in credit card payment, ...);
- **Cyber-terrorism:** Terrorism on physical telecom infrastructures (fixed or wireless telecommunication network operations) and cyber-terrorism with unlimited resources and motivation or cyber warfare with rogue nations has become a tangible threat to the reliability of critical infrastructures of countries that are more or less related to digital infrastructures. However, the term of cyber-terrorism is differently understood in various countries. The international community has not yet been able to agree on the vocabulary and basic concepts. EU-Brazil cooperation in the fight against cybercrime is essential if one wants to limit failures and attacks on cyberspace, maintain stability of services on infrastructures and encourage society development with digital technologies.
- **CERTs** (Computer Emergency Response Team) recognised as premier references: Initiatives for the creation of CERTs or digital security task forces at national, continental, and international levels with clearer distinction of the roles of different actors. These actors may require further complimentary units. However, they need to be woven into the fabric of the digital security ecosystem with clear allocation of responsibilities. An important element of the EU cyber security strategy will be significant efforts to harmonise the cyber security capabilities of European Member States via a well-functioning national-level (CERT).
- **Cyber forensics** for tracking attackers and enforcement purposes, protection against the social network of hacker groups, post-incident investigations are very important to analyse the perpetrators of digital crimes and to prosecute them for their activities. New frameworks and modalities are needed to meet the requirements of performing digital investigations of cyber world. These new techniques need to consider the peculiar characteristics of societal diversity and cultural backgrounds besides globalisation of criminals and their targets.

- Advanced and specialised **courses** to create a culture of security, privacy and trust; cooperation with EU must be enhanced in this area in order to create better awareness about Cyber security.
- **Protection against malware:** the establishment of joint action teams of experts from the EU and Brazil can create more effective clout/momentum to identify and overcome these challenges collectively rather than individually. Figure shows the situation in Brazil in relation to malware and potentially unwanted software categories from a study carried out in 2012.



**Figure 2. Malware and potentially unwanted software categories in Brazil in 2012, by percentage of computers reporting detections (Microsoft Security Intelligence Report)**

## 2. Future Internet (FI) Data and Information provenance

**Background:** When we see data on the Web, currently, we do not know where it came from and how it got there. This information and its ultimate source (provenance) is typically lost in the process of copying, or transcribing, or transforming databases. Provenance is essential to data integrity, currency and reliability and is a topic of importance being studied in Brazil. Future Internet data and information provenance (trusted source), especially during times of disaster and large scale events, is a topic that has been highlighted during the BIC interactions from the start for mutual cooperation between Brazil and the EU. Recent examples (e.g. Japan earthquake and subsequent tsunami) were discussed at length in which the reliability of information becomes extremely questionable for long periods due to the vicious cycle of feeding untrustworthy or incorrect information between conduits via the ‘new media’. For a more trustworthy Future Internet, the user must be able to categorically trust the source and integrity of the data and information they are receiving. There are complementary skills in Europe and Brazil on these research topics and they can be leveraged well together on this topic.



**Research challenges of mutual benefit:** Within BIC, the following activities that Brazil – EU collaboration could provide mutual benefits related to FI Data and Information provenance have been identified:

- **Scientific Domains:** Scientists deal with greater heterogeneity in data and metadata- Trust, quality, and copyright of data are significant when using third-party data- E-Science - Business Domains.
- **Virtual organizations:** workflows, warehouse environments, where lineage information is used to trace the data in the warehouse view back to the source from which it was generated.
- **Governmental Domains:** In Brazil, within the social inclusion policies, this is a very important issue. E.g. Voting system, taxing system.
- **Data Quality:** use of lineage to estimate data quality and data reliability based on the source data and transformations.
- **Audit Trail:** tracing of the audit trail of data, determine resource usage and errors in data generation.
- **Replication Recipes:** allow repetition of data derivation, help maintain its currency and re-do replication
- **Attribution:** the pedigree can establish the copyright and ownership of data, help to determine liability in case of erroneous data.
- **Informational lineage:** use of lineage to query metadata for data discovery.
- **Applications:** Some examples of the applications in the different domains are such as collecting and modelling provenance from heterogeneous applications and data sources, integrating distributed and incomplete provenance information to compose complete provenance models and the effective management and querying of distributed, semantic provenance repositories for different applications.
- **Standardization:** There are a number of recommended actions within the scope of research cooperation projects are standardization of provenance models, services, and representations, provenance management architectures and techniques, analytic provenance and the relationship between provenance and visualization, provenance and the semantic web, human interpretation of provenance security and privacy implications of provenance, provenance and social media and provenance implications for trust.

### 3. Future Internet (FI) Data and Information privacy

**Background:** Within the Future Internet, which will contain a large mix of ‘smart’ technologies, including Internet of Things, mobile devices, cloud computing & cloud Storage, amongst others, data and information privacy is a major challenge associated with data and knowledge sharing along with the corresponding international impact implications if its trustworthiness gets compromised across the internationally diverse physical, human and functional elements.

Infrastructures Integrity is a dedicated international association issue for infrastructures spanning the telecommunication SLA’s behind the cloud and the Future Internet, or for the financial and services sector (data centres, service and support centres etc.). Similar to the cloud issues, the policy issues of privacy, governance and liability are critical. Trust, Security, Privacy Compliance Management and Information Security Assurance are key international policy elements that need to be developed between Brazil and the EU. They need to be detailed from a multi-national and multi-cultural viewpoint.



There are complementary skills in Europe and Brazil on these research topics and they can be leveraged well together on this topic.

**Research challenges of mutual benefit:** Within BIC, the following activities that Brazil – EU collaboration could provide mutual benefits related to FI Data and Information privacy have been identified:

- **Smart technologies and privacy:** in collection of data from heterogeneous sources, design, composition, discovery and delivery of context-aware secure services are pinpointed as objectives for many participants. Technologies such as the Near Field Communication (NFC), for example, ease the collection of contextual data and link a service such as payment to an actual physical location. Other proximity sensor technologies such as Bluetooth, Wi-Fi or barcodes pose similar problems and the setting of associated privacy rules seems not to be sufficient since the preferences can be very dynamic while users trust varies from location to location.
- **Privacy by design principles:** closely related to a specific service business model should help the user in the management of this location information. The integration of sensor networks with social networks is another example of applications that can sense the context, provide new services, but also extend the notion of “identifiable” data. Context can be also observed on micro-blogging services such as Twitter.
- **Future Internet technologies and privacy:** environments that combine sensors (Internet of Things), social networks (Internet of People) and service provision (Internet of Services) involve event-related security information that must be understandable independently of language, age, physical condition, social status, or education of the recipient. This is an important aspect where Brazil has a great deal of experience and track record in the past, such as in the design of their installed Automated Teller Machines (ATM) machines in the 1970’s in which a rigorous design process involving customers was followed in the user interface design resulting in extremely user friendly interfaces. In the Future Internet (FI), context-aware services and devices with localization systems will be offering attractive new functionality. People who travel and need access in mobile international environment, such as, for example, tourists or business people, will use not only contents but likely other services such as on-line collaboration, context-aware social networking or trusted local services such as emergency related or mobile payment services. The challenge for a “roaming” user will be to discover and use only 100% trusted and secure services where origin and data provenance can be verified. There is work ongoing in Brazil on this topic and the participants exhibited a willingness to work together with Europe on this.
- **Universality of trust and privacy:** Concerns about trust and privacy are universal. Citizens on the move are especially sensitive and vulnerable targets given that different platforms, service providers, organizations, business processes, policies and technologies may be involved within international service-chain provision. Therefore, user-centric security, trust and privacy configuration sets are needed. As a user typically uses the same device in multiple contexts, assistance or even automation of adaptation of configuration to a specific context is needed. It is important, therefore, to provide adaptable and context-aware privacy protection mechanisms and tools for automatic customization and personalization of security services.
- **Standardisation:** Privacy is one of the research issues that is highly subjective and contextual and there is a need for the agreement and publications of standards for WS-Agreement, and similar web service protocols, while the Semantic Web technologies



for Secure Web Services may be yet further investigated while the community reaches consensus on the appropriate approach. Europe is ahead in the research on this topic.



These latter research topics were the subject of a recent Brasil – European Union Dialogue conference on Digital Economy, Cloud computing, Security, Privacy and Data protection, held in Brasília, Brazil on 12<sup>th</sup> March 2013.

The BIC project was invited by Brasscom via an IAG member at University of Brasília (UnB) to attend the full day event in Brasília with prominent government, industry and researchers from Brazil and the EU Commission presenting areas for cooperation including Digital economy, cloud computing, privacy and data protection.

A significant amount of networking was possible during the event and the BIC project was described to the delegates from both CNPQ and the European Commission delegation and they said they would lend support to the setting up of BIC External Working Groups (EWGs) into the future.



#### 4. Digital Identity Management



**Figure 3. National Identity card in Brazil**

**Background:** This research activity has been especially promoted by the Brazilian research community including RNP (Rede Nacional de Ensino e Pesquisa), PUC Rio amongst others, as an important area of potential cooperation between EU and Brazil.

RNP has now created a Technical Committee for Identity Management (CT- GId), with members from RNP itself and from the academic community, with the goal of overseeing the evolution and integration of identity-related services. One of the first activities of this Committee was to recommend the implementation of a pilot eduroam federation, for access to Wi-Fi networks. This was being demonstrated at RNP's annual workshop (WRNP). Other foreseen activities include proposals for the integration of the Brazilian PKI and Federation with their international counterparts and the fostering of the use of these technologies in different scenarios.

**Research challenges of mutual benefit:** Within BIC, the following activities that Brazil – EU collaboration could provide mutual benefits related to Cloud security have been identified:

- **Authentication and Authorization:** In the areas of authentication and authorization, two independent groups led efforts related, respectively, to public key infrastructures and to federated authentication and authorization. The first of these efforts resulted in ICPEDU, a PKI for the academic community. Prof. Ricardo Custodio, from UFSC (Universidade Federal de Santa Catarina), led the PKI efforts, and currently the root CA is maintained by his institution. The efforts of the second group led to the creation of CAFe, a federation for access to web-based services in which authentication is provided by the users' home organizations, known as their Identity Providers. Service



Providers receive information about authentication and other attributes necessary for access control from these Identity Providers, creating a trust network. The different nature of business environments and political landscapes between EU and Brazil require a fresh look into the risks of using delocalised processing and storage of data and information. Generally businesses are advised to use Cloud technologies for the low risks processes. However, we need to work on different risks and perception of risks to see how harmonised risk models can be developed.

- **Digital Certification:** Digital Certification is a tool that enables cybercitizens to do safety electronic transactions, such as sign agreements and get access to restricted information, among others. It's also a fundamental tool in the businesses dematerialization process actually in course not only in Brazil but over the world. Within their ICP-Brazil: The National Digital Certification System, Brazil already has a relevant set of digital certification ready applications, mainly in bank industry, in the judiciary, in electronic invoices, in private and public health system and in a myriad of e-government systems. All of these nationwide applications have proven in practice the interoperability and security of ICP-Brazil and its Certification Authorities. In addition to identifying the Brazilian citizens in the web, the ICP-Brazil digital certificates offer identification services based on the current legislation and legal validity to the acts done with their use. Digital certification is a tool that enables application like e-commerce, e-sign of agreements, e-bank transactions, e-government services, among others. These are virtual transaction, i.e. without the physical presence of individuals, but where personal unequivocal identification is a must despite the operations are done by Internet.
- **Digital Identity and global compatibility (interoperability):** A potential for this collaboration could be interoperable trustworthy “identity spaces”, which refer to identity domains that range from social networking sites to a country level where the government is acting as an identity provider (for unique electronic ID documents). While we can assume that government issued e-IDs (with qualified certificate) are going to be accepted by a number of service providers and individuals using the services (but not all), many service combinations and aggregations will pose issues of interoperability due to varying levels of assurance and non-existence of internationally conformant metrics. Closely related is the notion of identity and privacy assurance. There is a need to jointly agree on the description of components and security requirements as well as offered identity management or privacy capabilities that would ease the security assurance of composed systems from an international data access perspective and EU compliant privacy laws.



## 5. Trust management models for emerging countries

**Background:** This research topic has been collectively identified by all three BIC countries for international cooperation with the EU. It concerns the development of trust models, mechanisms and architectures to support business ecosystems.

**Research challenges of mutual benefit:** Within BIC, the following activities that Brazil – EU collaboration could provide mutual benefits related to trust management have been identified:

- **Cultural frameworks:** Techno-socio business ecosystems require a comparative analysis of cultures. Trust is a social behaviour and therefore managing trust requires managing behaviours. These cultural and social controls need to be analysed and mapped with the other communities to establish trust among these communities.
- **Reputation models:** The reputation of individuals is determined on various parameters including but not limited to their social status, community affiliation. Developing reputation models for their online behaviour and harmonise them with their cultural understanding of reputation requires new holistic approach to develop new reputation models that can effectively work with their European counterparts.
- **Interaction with the broader society:** It is important to study a broader segment of society and test the prototype of the new trust models at mass scale because results will be better and more accurate with larger sample size. It is therefore important to include wider communities and social groups including urban and rural groups to study and analyse their peculiar stand on trust and reputation and how to use these beliefs in global business ecosystem.



## Presentations of invited Participants

**Antônio Marcos Alberti, Associate Professor and Researcher at INATEL** - Instituto Nacional de Telecomunicações <http://www.inatel.br/novagenesis/> made a presentation entitled, “Clean Slate approaches for the Future Internet: What are the Security requirements?” NovaGenesis is a “Clean Slate” architecture for the new generation of converging information and communications technologies (ICT). In addition to content exchanging and distribution, which is the main objective of a communication network like the Internet, NovaGenesis also focusses on data and information processing and storage. It also includes the cloud distributed services and applications. The presentation addressed an overview of the architecture and in particular, the security requirements this “clean slate” architecture would attract. The full presentation can be found at [http://www.bic-trust.eu/files/2013/10/Alberti\\_EWG.pdf](http://www.bic-trust.eu/files/2013/10/Alberti_EWG.pdf).

**Ricardo Dahab, Professor and Senior Researcher at UNICAMP**, presented a comprehensive overview of research in computer and information security in Brazil’s academia community, including the work of the SBC, the Brazilian Computing Society. CEseg is one of the SBC special interest groups, engaged in Information and Systems Security. CEseg is responsible for the main event entitled SBSeg in the security research areas in Brazil. The 13<sup>th</sup> edition of SBSeg is to be held in Manaus, in the Amazon Region, on 11-14<sup>th</sup> November, 2013. In addition to the main tracks and short courses, there are four workshops on Forensics, Identity Management, Corporate security, and Undergraduate projects, according to Prof. Dahab.

The works of the two research communities that are engaged in cryptology and information and systems security were highlighted in the presentation. The full presentation can be found at [http://www.bic-trust.eu/files/2013/10/RDahab\\_EWG.pdf](http://www.bic-trust.eu/files/2013/10/RDahab_EWG.pdf).

**Sergio Kofuji, Professor and Senior Researcher, University of Sao Paulo, made a presentation on Privacy, Security & Trust in the context of Brazil/European Union partnership.** A number of projects (and proposals) were presented in light of the Brazil/EU partnership. These include the following:

- IBE: Privacy Security Trust Brazil-EU
- EPUSP&UFU: Future Networks – OFELIA/EDOBRA\*
- EPUSP&UFU: Security in Critical Infrastructure, Smart Grids, Smart Meter Communication\*
- EPUSP: Security in next generation (4G, 5G) cellular communications\*\*

\* Projects with Funding

\*\* *Approved*

Privacy, Security and Trust was compared between the EU and Brazil sides as shown in table 1.

Privacy, Security, Trust in EU	Privacy, Security, Trust in Brazil
<ul style="list-style-type: none"> <li>• Privacy and Security have been subject of long discussions</li> <li>• Privacy and Security Tradeoff: political issue</li> <li>• Security: technical issue</li> <li>• Privacy Laws and Regulation</li> <li>• “Safe Harbors”</li> </ul>	<ul style="list-style-type: none"> <li>• Privacy is assured in the constitution</li> <li>• Brazil is not an EU “Safe Harbor”. Principles (<a href="http://export.gov/safeharbor/eu/eg_main_018475.asp">http://export.gov/safeharbor/eu/eg_main_018475.asp</a>):</li> <li>• Notice - Individuals must be informed that their data is being collected and about how it will be used.</li> </ul>



<ul style="list-style-type: none"> <li>• Privacy is not in the constitution of all the states of the EU</li> </ul>	<ul style="list-style-type: none"> <li>• Choice - Individuals must have the ability to opt out of the collection and forward transfer of the data to third parties.</li> <li>• Onward Transfer - Transfers of data to third parties may only occur to other organizations that follow adequate data protection principles.</li> <li>• Security - Reasonable efforts must be made to prevent loss of collected information.</li> <li>• Data Integrity - Data must be relevant and reliable for the purpose it was collected for.</li> <li>• Access - Individuals must be able to access information held about them, and correct or delete it if it is inaccurate.</li> <li>• Enforcement - There must be effective means of enforcing these rules.</li> </ul>
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Table 1. Privacy, Security and Trust compared and contrasted between EU and Brazil.

The full presentation can be found at [http://www.bic-trust.eu/files/2013/10/SKofuji\\_EWG.pdf](http://www.bic-trust.eu/files/2013/10/SKofuji_EWG.pdf)

**Diego F. Aranha, Professor and Senior Researcher, University of Brasília, made a presentation on “Cryptography for the Internet of Things”.** The challenges related to the use of cryptography for keeping data secure and ‘secret’ within environments utilising the Internet of Things<sup>6</sup> in a number of different scenarios were presented. In addition to present and on-going work, a number of possible solutions were presented including Lightweight Symmetric Cryptography, Asymmetric Cryptography, and Physical and Computational assumptions. The full presentation can be found at [http://www.bic-trust.eu/files/2013/10/DAranha\\_EWG.pdf](http://www.bic-trust.eu/files/2013/10/DAranha_EWG.pdf).

**Jean Everson Martina, Professor and Senior Researcher, Universidade Federal de Santa Catarina, made a presentation on “The Ever Changing Threat Model: A Social-Technical perspective of Computer Security”.** The motivation for using a human centric protocol for security to dealing with new types of threats was presented. There is a need for ensuring that protocols’ assumptions involving human-device and human-human interaction are implemented and supplemented then by taking into account dynamic user-interactions. The use of a concept known as “Security Ceremonies” was described. A ceremony allows more detailed analysis of a protocol and assumptions are more precise and well described. However, a Dolev-Yao attacker for ceremonies is not always consistent with real world threats and the description of attacker capabilities for ceremonies scope requires finer granularity in its description. The approach is based on a well-established model for security protocols, where the attacker is weakened to match the premises for human-device interaction and human-human interaction. The model helps security protocols and ceremony designers to develop ceremonies using reasonable assumptions that are tailored to the real capabilities of the attacker, and that do not contain unnecessary protection mechanisms to unrealistic attacks. The proposers of this work already have EU partners working on this project, but they want to expand the Multi-lateral International cooperation and thus very interested in what BIC is proposing in this regard. The full presentation can be found at [http://www.bic-trust.eu/files/2013/10/JEMartina\\_EWG.pdf](http://www.bic-trust.eu/files/2013/10/JEMartina_EWG.pdf).

<sup>6</sup> The Internet of Things (IoT) is a scenario in which objects, animals or people are provided with unique identifiers and the ability to automatically transfer data over a network without requiring human-to-human or human-to-computer interaction.



**Marcos Antonio Simplicio Junior, Professor and Senior Researcher, Universidade de São Paulo – Escola Politécnica, made a presentation on “Security- and cryptography-related research at the Escola Politécnica’s Department of Computer Engineering”.** The research activities related to applied cryptography include crypto primitives such as lightweight post quantum algorithms for signature and encryption; elliptic curves and pairings; password based key-derivation functions; and message authentication. Research on Crypto protocols include those related to mobile banking; lightweight authenticated key-agreement; cheating-detection in card games; Research related to efficient implementation is covering areas such as hardware oriented design and optimisations. Research related to network security includes: 1. Securing distributed systems, including P2P based IPTV systems, cloud computing and mobile health systems for data collection; and 2. Security in resource-constrained networks, including wireless sensor networks, SIM cards, embedded systems. A number of current international projects were presented along with new project ideas. The full presentation can be found at [http://www.bic-trust.eu/files/2013/10/MASimplicioJr\\_EWG.pdf](http://www.bic-trust.eu/files/2013/10/MASimplicioJr_EWG.pdf).

**Marcelo Zuffo, Professor, University of São Paulo, presentation on “Success Projects in BR-EU Coordinated Calls”.** The presentation focussed on the recent successes in the Joint Brazil – EU call, including the establishment of a Think Tank for long term strategies for public policies in the areas of visual analytics, industrial policy, and digital TV.

**Paulo E. Lovato, Professor, IBE (Instituto Brasil Europa), presentation “IBE as a promoter of Bilateral Cooperation”.** IBE, which stands for Instituto de Estudos Brasil Europa – Institute for Studies Brazil Europe, is made up of Brazilian university partners and European university associates following a call for the establishment of a European Studies Institute in Brazil. This initiative could be highly relevant to the BIC project EWG as they have held set up a Think Tank structure already, have held annual conferences and workshops and it has spawned a number of bi-lateral activities between Brazil and the EU and also with individual EU Member States, including Brazil – Germany. It is possible that the Brazil EWG could study the bi-lateral approaches of other EU member states and gain some insights and lessons learned. The full presentation can be found at [http://www.bic-trust.eu/files/2013/10/PLovato\\_EWG.pdf](http://www.bic-trust.eu/files/2013/10/PLovato_EWG.pdf). Some additional information on the IBE Think Tank can be found in the presentation found at [http://www.bic-trust.eu/files/2013/10/SKofuji\\_EWG.pdf](http://www.bic-trust.eu/files/2013/10/SKofuji_EWG.pdf).

**Jacob Scharcanski, Professor, Federal University of Rio Grande do Sul Porto Alegre, (UFRGS), presentation on “Managing Identities: Some Relevant Biometrics Issues”.** A number of potential research topics related to managing identities with biometrics were presented including Head Pose Estimation in Non-Cooperative Capture of Facial Features and Face Modelling; Identity Verification/Re-Verification; and Unconstrained eye recognition, amongst others. The full presentation can be found at [http://www.bic-trust.eu/files/2013/10/JScharcanski\\_EWG.pdf](http://www.bic-trust.eu/files/2013/10/JScharcanski_EWG.pdf).



## Conclusions

*“As two of the main drivers of Institute of Software Technology – ITS are to promote and encourage Research & Development and Innovation & Markets, it is very appropriate that the BIC project’s EWG would take place here as they are both planning on integrating their results with fostering international collaboration within the new research programme of Horizon 2020 (2014 – 2020), whose main mission points are also Research & Innovation.”*, said Sr. Jaime Luis Stabel of Instituto de Tecnologia de Software (ITS), during the welcome address of the BIC EWG workshop.

On Tuesday, 22<sup>nd</sup> October, 2013, an official launch and kick off meeting was held of the first Brazilian Extended Working Group (EWG) of BIC, which was co-hosted by the EU FP7 BIC project in cooperation with the Research Brazil Ireland (RBI) project of the Science Foundation Ireland. The launch workshop was held at the premises of the [Instituto de Tecnologia de Software \(ITS\)](#) in São Paulo, Brazil.

A number of potential key research themes in Trustworthy ICT earmarked for international cooperation between Brazil – EU cooperation were pre-distributed to the attendees as a starting point for discussions

within the EWG. The research themes, falling under the main categories of: Research involving Cyber security, Future Internet (FI) Data and Information provenance (source/birth of data), Future Internet (FI) Data and Information privacy, Digital Identity Management and Trust management for emerging countries were arrived at from an earlier analysis carried out within the Working Groups of BIC. The launch meeting participants gave their views on these research themes and these will be incorporated into the final recommendations of the BIC project. Additional research items within these key themes were highlighted by the participants including: Clean Slate Future Internet approaches and resultant security challenges, stronger emphasis on future cryptography for smart technologies/Internet of Things, security for embedded systems, biometric technologies for ID management, social-technical approaches for dealing with new security threats, securing open data whilst protecting privacy of citizens, advanced privacy protecting forensics for dealing with cyber crime, amongst others.

Professor Ricardo Dahab of the University of Campinas (UNICAMP), has kindly agreed to take on the role of steering the EWG of Brazil and his first plans are to increase membership with eminent researchers from all over Brazil in the specific research themes identified by BIC WGs as above. Professor Dahab suggested publicising the BIC EWG work at the upcoming 13<sup>th</sup> edition of SBSeg event being held in Manaus, in the Amazon Region, on 11-14<sup>th</sup> November, 2013. Prof. Dahab pointed out that the event of today was a very good start for the EWG given the large attendance from the research communities around Brazil, along with the enthusiasm exhibited and their in-depth views and presentations. There were very significant and valuable suggestions as can be seen in the report and event web site<sup>7</sup>.

*“It is very encouraging to hear today the discussions about the synergy between the approaches and collaboration plans of the different international cooperation projects involving Brazil and the EU: from Research Brazil Ireland (RBI), Instituto de Estudos Brasil Europa – Institute for Studies Brazil Europe (IBE), B.BICE+ and BIC”*, said the Brazil co-Chair Prof. Priscila Solis-Barretto of University of Brasilia, when concluding the BIC EWG launch workshop.

A number of the BIC EWG members from Brazil are attending the ICT 2013 event and will attend the BIC IAG Annual Forum 2013, in which these results will be presented to the EU Commission, Int’l Advisory Group of BIC and the wider research community.

<sup>7</sup> <http://www.bic-trust.eu/events/bic-brazil-ewg-launch-meeting/>

## Acknowledgments

The BIC project is supported within the portfolio of the European Commission's DG-CNECT Unit H.4, Trust and Security, and has received funding by European Commission's Seventh Framework ICT Programme under grant number 25258655 for the period January 2011 to December 2013.

A considerable amount of local organisation for the BIC Brazil EWG launch event took place over a number of months in Brazil and the EU, especially spearheaded by BIC International Advisory Group member, Professor Priscila Solis-Barretto of University of Brasilia with the support of Dr. Paulo Siqueria of CNPq, and especially Sr. Jaime Luis Stabel and the staff at the [Instituto de Tecnologia de Software \(ITS\)](#) in São Paulo, Brazil.

A special word of thanks also to the coordinators of the Research Brazil Ireland (<http://www.RBI.ie/>) project in both Ireland and Brazil for their strong support and allowing the BIC EWG workshop to be co-joined with their prestigious [launch event](#)<sup>8</sup> held on 21<sup>st</sup> October 2013 at the University of São Paulo. This cooperation enabled a very strong attendance from all over Brazil to both of our events.

The organisers are very appreciative of all of the attendees from Government, Industry and Academics for taking their time to attend and contribute.

The organisers are also very appreciative of the strong interest and support shown by the European Commission delegation in Brazil, especially Dr. Augusto De Albuquerque, Minister Counselor, Head of Information Society and Media Sector.

## Further reading

BIC Web site: <http://www.bic-trust.eu/> Public reports available at: <http://www.bic-trust.eu/project-impact/>

BIC Working Groups Workshop 2012, Brussels, Belgium <http://www.bic-trust.eu/events/bic-workshop-on-the-cross-domain-coordination-of-international-cooperation-day-1-and-technical-themes-in-trustworthy-ict-and-inco-day-2/>

BIC Annual Forum 2012, Lisbon, Portugal <http://www.bic-trust.eu/events/bic-forum-2012/>

BIC: A strategic approach for International Cooperation (INCO) [http://www.bic-trust.eu/files/2013/01/Clarke\\_Sharma\\_INCO\\_Strategy\\_BIC\\_Sept20121.pdf](http://www.bic-trust.eu/files/2013/01/Clarke_Sharma_INCO_Strategy_BIC_Sept20121.pdf)

BIC: A long term strategy: Ways to Move Forward on INCO, and Energise Collaborative Research [http://www.bic-trust.eu/files/2013/01/Sharma\\_StrategyWaysToMoveFwd\\_Nov2012.pdf](http://www.bic-trust.eu/files/2013/01/Sharma_StrategyWaysToMoveFwd_Nov2012.pdf)

BIC Interim recommendations report on future global research challenges in ICT trust and security [http://www.bic-trust.eu/files/2013/01/D3.1\\_BIC\\_final\\_new.pdf](http://www.bic-trust.eu/files/2013/01/D3.1_BIC_final_new.pdf)

BIC Survey on prioritised research themes in Trust and Security [Survey on research priorities](#)<sup>9</sup>

## Further information

For more BIC related information, please contact James Clarke <[jclarke@tssg.org](mailto:jclarke@tssg.org)>.

For information on joining the BIC Brazil EWG, please contact Priscila Solis-Barretto <[pris@cic.unb.br](mailto:pris@cic.unb.br)>

<sup>8</sup> <http://www.dcu.ie/research/highlights/2013/october/research-brazil-ireland-programme-launch.shtml>

<sup>9</sup> <http://www.bic-trust.eu/priorities-survey/>



## Appendix 1. Agenda BIC – Brazil EWG Launch WorkShop

### Agenda: BIC – Extended Working Group Workshop

#### Management Strategy, Structure and Approach on BIC R&I for Trustworthy ICT

- 22 October 2013 -

**Venue:** Instituto de Tecnologia de Software – ITS, Rua Prof. Tamandaré Toledo, 69 - 3º. andar - Itaim Bibi, CEP: 04532-020 - São Paulo

10:00 AM	Assembly of Participants, Mutual Introductions and Tea
10:10 – 11:00 AM	Opening session Welcome by <b>Prof. Priscila Solis-Barretto</b> , Member IAG, BIC Welcome Note & Address by Mr James Clarke, Waterford Institute of Technology – TSSG, BIC Coordinator, outlining project themes, achievements, identified Brazil - EU priorities in Trustworthy ICT, and expected outcomes from this event. Welcome by <b>Sr. Jaime Luis Stabel, ITS</b> . Keynote address: Promoting coordination of EU/MS/AC initiatives with Brazil via B.BICE+, <b>Guillaume Ernst</b> – IRD (Brasilia), Paulo Siqueria– CNPq (Brasilia)
11:00- 11:30 AM	Overview of Proposed BIC International Cooperation (INCO) Strategy & Management Structure and industry perspective by <b>Mr James Clarke</b> , WIT – TSSG, BIC Coordinator
11:30AM-13:30 PM	<b>Researchers Views</b> <b>Prof. Antonio Marcos Alberti</b> , INATEL, Clean slate approaches for the Future Internet: What are the Security requirements? (10 minutes). <b>Prof. Ricardo Dahab</b> , UNICAMP, An overview of research in computer and information security in Brazil's academia (10 minutes) <b>Prof. Sergio Kofuji</b> , USP. Trust& Security in the context of Brazil/European Union partnership (10 minutes) <b>Prof. Diego F. Aranha</b> , University of Brasília, Cryptography for the Internet of Things (10 minutes) <b>Dr. Jean Everson Martina</b> , Universidade Federal de Santa Catarina. Socia-technical Aspect of Computer Security (10') <b>Prof. Dr. Marcos Antonio Simplicio Junior</b> , Universidade de São Paulo - Escola Politécnica. Security- and cryptography-related research at the Escola Politécnica's Department of Computer Engineering (10 minutes) <b>Prof. Marcelo Zuffo</b> , USP, Success Projects in BR-EU Coordinated Calls(10 minutes) <b>Prof. Paulo E. Lovato</b> , IBE (Instituto Brasil Europa), IBE as a promoter of Bilateral Cooperation (10 minutes) <b>Prof. Jacob Scharcanski</b> , UFRGS, Managing Identities: Some Relevant Biometrics Issues (10 minute)
13:30- 14:00 PM	Concluding Remarks, vision for future INCO, Agenda for future actions & plans by <b>Mr. James Clarke</b> and <b>Prof. Solis- Barretto</b> followed by Lunch



## Appendix 2. List of Attendees

Name	Organisation
James Clarke – EU Co-Chair	Waterford Institute of Technology (WIT), Ireland
Priscila Solis-Barretto – Brazil Co-Chair	University of Brasilia (UNB)
Guillaume Ernst	IRD (Brasilia)
Antônio Marcos Alberti	National Institute of Telecommunications (INATEL)
Diego F. Aranha	University of Brasilia (UNB)
Ricardo Dahab	Univ. of Campinas (UNICAMP)
Joao Gondim	University of Brasilia (UNB)
Sergio Kofuji	University of São Paulo (USP)
Paulo E. Lovato	IBE (Instituto Estudos Brasil Europa)
Leonardo Luciano de A. Maia	National Institute of Telecommunications (INATEL)
Jean Everson Martina	Universidade Federal de Santa Catarina
Cecilia Matsumura	IBE (Instituto Estudos Brasil Europa)
Lisa McInerney	Dublin City University, Coordinator of Research Brazil Ireland
Jacob Scharcanski	Federal University of Rio Grande do Sul Porto Alegre (UFRGS)
Marcos Antonio Simplicio Junior	Universidade de São Paulo - Escola Politécnica
Paulo Siqueria (day 1 only)	CNPq (Brasilia)
Jaime Stabel	Instituto de Tecnologia de Software (ITS)
Marcelo Zuffo	University of São Paulo (USP)

Note: If you were in attendance and do not appear on this list, please contact [jclarke@tssg.org](mailto:jclarke@tssg.org)



### Appendix 3. Photographs



**From left to right:** Sr. Jaime Luis Stabel, Instituto de Tecnologia de Software (ITS), Prof. Priscila Solis-Barretto, University of Brasilia, Mr. James Clarke, Waterford IT, BIC coordinator.



**From left to right:** Dr. Guillaume Ernst – IRD (Brasilia)



**From left to right:** Prof. Antônio Marcos Alberti, INATEL, Mr. James Clarke, Waterford IT.



**From left to right:** Prof. Sergio Kofuji, Univ. of São Paulo, Mr. James Clarke, Waterford IT.



**From left to right:** Prof. Ricardo Dahab, UNICAMP, Mr. James Clarke, Waterford IT.



**From left to right:** Prof. Diego F. Aranha, University of Brasília, Mr. James Clarke, Waterford IT.



**From left to right:** Dr. Jean Everson Martina, Universidade Federal de Santa Catarina, Mr. James Clarke, Waterford IT.



**From left to right:** Prof. Dr. Marcos Antonio Simplicio Junior, Universidade de São Paulo - Escola Politécnica, Mr. James Clarke, Waterford IT.