



BUILDING International Cooperation
for Trustworthy ICT

PROJECT FINAL REPORT – Publishable version

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1. The Publishable Report

1.1. Executive Summary

Purpose: Over the last number of years, the European Commission has been advocating the need for and building international cooperation (INCO) in the areas of Trustworthy ICT, including network and information security, cyber security, trust, and privacy. In targeting Brazil, India and South Africa for cooperation, the BIC project developed three core foundations driving EU-International cooperation with these countries, namely (a) advocacy and alignment of EU RTD + policy priorities as a basis of mutually beneficial cooperation; (b) community building with researchers and programme management (i.e. funding bodies), and (c) establishing a long term strategy and consequent mechanisms for international cooperation.

BIC – Objectives

- ✓ Charting the landscape of Brazil, India and South Africa and their initial match to EU trust, security and privacy themes;
- ✓ Prioritisation of the EU suggested vision and research directions amongst the new countries (Brazil, India and South Africa), including alignment of work programmes;
- ✓ Global alignment, consensus and outreach of the European visions for international cooperation and challenges across all targeted countries;
- ✓ Definition of Tangible International Activities including establishing success metrics and setting up projects.

BIC - Implementation

- ✓ Establish BIC Cooperation platform, including Int'l Advisory & Working Groups (for post BIC);
- ✓ Support the BIC platform with secretariat, organisational aspects, web portal and other supports;
- ✓ Collect, analyse and promote the work of the BIC cooperation platform;
- ✓ Carry out an alignment between countries and the EU, prioritising on the mutually beneficial research topics for EU - international cooperation;
- ✓ Disseminate activities in international communities through workshops, web portal, & social media;
- ✓ Creating a programme structure setting up in-country bodies for international cooperation.

BIC - Impact

- ✓ Changing the mind-set from bi-lateral INCO activities to focus instead on multi-lateral INCO activities for Trustworthy ICT;
- ✓ The establishment and setting up of an EU-based international cooperation platform, including an International Advisory Group, Core Working Groups, and Extended Working Groups, all for the purpose of developing a longer term strategy for international cooperation for Trustworthy ICT that will continue after the lifetime of BIC;
- ✓ Raising the profile of international cooperation for Trustworthy ICT from an early 'nascent' stage to one of major importance as now expressed for Horizon 2020;
- ✓ Providing analysis on prioritised research topics and recommendations, including road mapping details for international cooperation in trustworthy ICT;
- ✓ Permanently raising the EU BIC brand name in the international communities and developing long lasting relationships with other projects and initiatives, including programme management.

The six priority research topics identified as potential topics for EU and India, Brazil, and South Africa researchers for mutually beneficial cooperation in the area of trust and security are:

1. Research in Cyber security, including an international data sharing framework;
2. Trust and Privacy, taking into account the human – oriented and cultural aspects;
3. Mobile security, Social media and Cloud security;
4. Security of Applications and data protection;
5. Identity management, accountability frameworks;
6. Future Internet Security, across a variety of domains e.g. Internet of Things, Smart Cities,

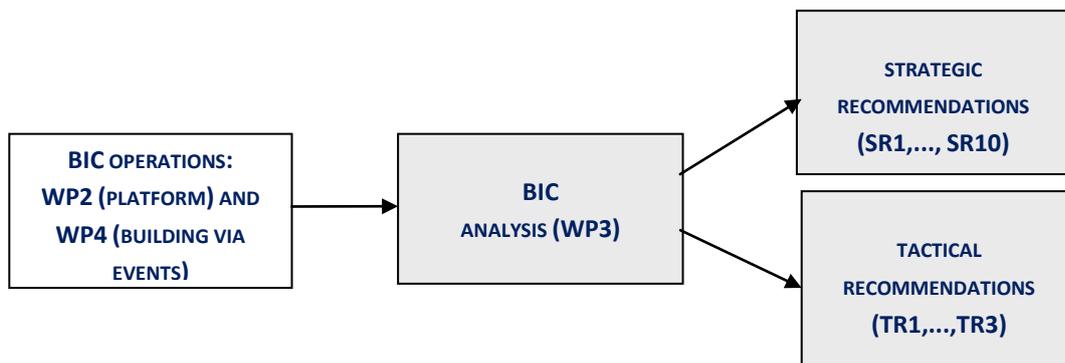


Figure 1. BIC recommendations structure

The long-term **Strategic Recommendations**¹ (H2020 and 2015-2025) for international cooperation in the field of Trustworthy ICT research and technological development are:

1. There is a need for new global approaches, meta-models and methodologies;
2. Global cyber security is a moving landscape of attacks, surveillance and failures;
3. International cooperation research is an essential H2020 requirement;
4. The international community must agree on grand principles;
5. There must be a shift in emphasis from the tactical bi-lateral collaborations to a strategic multi-lateral approach;
6. There is a need to keep an international open-ness in the specifications of services and standardisation;
7. There is a need for an international mobility model approach;
8. There is a need for an international approach dealing with the massive abstraction of software and data (e.g. resilience of virtualisation);
9. An international cooperation is needed to deal with the fragility of interconnections;
10. We need an international approach to steer the evolution and strengthening of the digital ecosystem in terms of network security governance and surveillance.

The shorter term **Tactical Recommendations** are:

1. The work of the BIC project, and its structural components (IAG, EWGs) should be continued, and expanded to other countries, in the long term;
2. The EU and BIC countries should formally recognise the Extended Working Groups as the nodal in-country agency/body to be called upon for discussions regarding future H2020 (and beyond) international cooperation activities;
3. The EWG should draw up and formalise their terms of references / objectives in synchronisation with one another and get these ratified by their respective Programme Management / Governments.

¹ The definitions, rationale, steps required and suggested road mapping (timing) information for each of these recommendations are detailed in the BIC report entitled D3.2. Final recommendations report on future global research challenges in ICT trust and security, which is available at http://www.bic-trust.eu/files/2013/01/D32-Final-Recommendations_report_V2.0.pdf.

The original structure of the BIC international cooperation platform, as shown in Figure 2, was based on a traditional mixture of top-down and bottom-up approaches, using an International Advisory Group (IAG) being supported by three ‘Core’ Working Groups (CWGs). Two of the core working groups, ‘WG1: Human Oriented Trust and Security’ and ‘WG2: Network Information Security/Cyber Security’ were focussed on technical / societal areas while the third working group ‘WG3, Programme Management and Funding Focus’, focused on activities related to the processes and mechanisms involved in facilitating and supporting INCO for Trustworthy ICT.

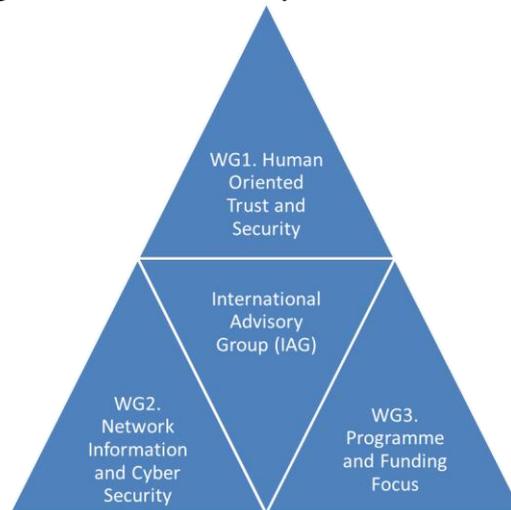


Figure 2. Original structure of BIC project and IAG/WGs

As the project progressed and evolved, moving into the phase where a longer term strategy was being brainstormed, it was suggested by members of the IAG (spearheaded by the India delegation and backed by the International Advisory Group) that BIC’s impact could be greatly enhanced if the foundations to sustain INCO were developed by BIC to last beyond the conclusion of the project. The suggestion was to develop a “Local Interests and Ownership” mechanism to develop a longer term sustainable model that would enable a larger grouping of key stakeholders (research, industry, government) to meet on a regular basis to promote their work in a stronger collective voice to their own funding agencies and feed into the wider BIC community objectives. Thus, the concept of setting up in-country EWGs (“Extended Working Groups”), as shown in Figure 2 below, was borne and consequently implemented in 2013.

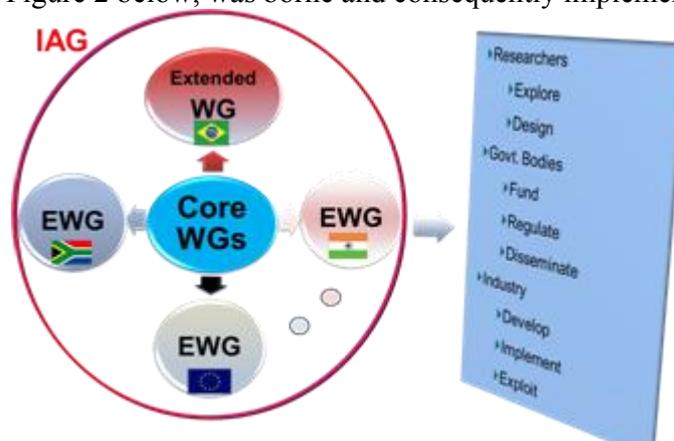


Figure 3. Revised structure of BIC project including IAG-CWGs-EWGs

Although not part of the original schema of the BIC platform structure, the newly formed EWGs (“Extended Working Groups”) 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. The EWG role, in essence is to:

- Identify, analyse and compile all the projects / initiatives being initiated by the in-country research institutes and industry of the country, classify the research projects and proposals for their domestic or international scope, necessity and suitability of such projects for INCO;
- Establish a Knowledge Bank as a source of information about all the research bodies, researchers, research work, industry participants, Government support, relevant processes, rules, etc.;
- Recommend such research proposals and projects for suitable inclusion / funding by respective bodies (EU, Govt. of Brazil, India, ...);
- Establish a cooperation platform with regular meetings with appropriate in-country Government bodies for necessary support such as approvals of plans and programme, mechanisms for funds’ allocations especially in light of the revised H2020 funding policy, and necessary authorizations as and when required;
- Establish a set up for involvement of the researchers and industry at the earliest possible stage. Towards this, work closely with Research and Industry forums within their countries such as EU NIS Platform, JWG on Cyber Security in India, Centres of Excellence in Cyber Security research, Observer Research Foundation - ORF (India), FICCI (India), NASSCOM (India), The Brazilian Association of Information Technology and Communication Companies (Brasscom), and similar forums in other countries;
- Identify suitable industry participants and create a conducive environment to motivate the industry elements for active participation;
- Work closely with the EWGs of other member countries to facilitate multi-lateral cooperation of various projects of the country duly identified;
- Identify the need and facilitate formation and setting up of Specialist Function Groups (SFGs) on project to project basis where SFGs are envisaged as specialists at functional level;
- Establish an ecosystem that will help generate a strong momentum for working together as a composite body of researchers and industry elements, to strongly promote the research topics that should be funded in future calls such as the EU’s Horizon 2020 (H2020) and/or other national or international programmes;
- Work together to determine the success metrics and Critical Success Factors (CSFs) that are to be considered essential before embarking on any project.

In conclusion, there is a requirement to focus on the ways and means to achieve IAG-EWG sustainability, by involving the right stakeholders from the research communities, industry, government funding and implementation agencies in all countries. The EWG is an important concept and the EWG bodies should not be allowed to disintegrate and stop functioning after the conclusion of the BIC project as these working groups can provide very valuable inputs to the upcoming Horizon 2020 programme, and potentially other research programmes as well.

A number of tactical short term recommendations have been elaborated regarding the steps needed to happen to facilitate the continuation of this important IAG-EWG concept in Deliverable D3.2 Final report on Future global challenges in ICT Trust and Security, available at http://www.bic-trust.eu/files/2013/01/D32-Final-Recommendations_report_V2.0.pdf.

1.2. A summary description of project context and objectives

The purpose of the BIC coordination action project is to foster cooperation across the international programme agencies and researchers within the focus areas of ICT Trust and Security, in order:

- to develop a shared understanding of global issues and scenarios and related **ICT Trust and Security** research directions in order **to foster a strong and competitive ICT security industry in Europe**;
- to **gain consensus** on difficult but important research questions for **collaboration in the EU-International research communities** working in the ICT Trust and Security areas;
- to **articulate** the collective impact of solving or failure to solve these challenges;
- to identify **mutually beneficial research directions** and **approaches** in order to substantially increase trust, security and privacy of future networks and infrastructures that will be characterised by a much greater scale and complexity; and,
- to **identify** potential for **common research resources**, e.g., test-beds, common software platforms, data sets, design and validation tools.

In order for these goals to happen, the key tasks undertaken were:

- (a) to understand the activities and planning of the BIC countries (Brazil, India and South Africa);
- (b) to carry out a mapping of the European Commission's planning to them, such that a common technical and policy alignment is viable.

The BIC project developed a cooperation platform including Trustworthy ICT researchers and programme management from the EU with their peers in new ICT high-growth countries, specifically those who have already signed Science and Technology agreements, namely Brazil, India and South Africa. Additional details on this platform structure will be given in section 1.4 with a full description given in D2.5. Final Report of the Working Group Activities, which can be found at http://www.bic-trust.eu/files/2013/01/D2.5_BIC_WG_V1.0.pdf.

The BIC project facilitated a technical- and programme-level platform for engagement, collaboration and networking activities internationally in a step-wise systematic fashion. In addition to the new collaborations with Brazil, India and South Africa, the project also advocated a multi-lateral strategic approach for global collaboration with the participation of the already established connections with the United States, Japan, Australia, South Korea and Canada.

At the heart of the cooperation model is the promotion of collaboration between programme management and researchers from all sides. The progressive detailing and aggregating of the technical themes by researchers requires systematic, step-by-step organisational processes, including technical, operational and logistical support. The BIC project established an organisational structure to enable the participating countries to develop a common strategy and approach for R&D in Trustworthy ICT in line with European priorities.

On this background, the objectives of the **BIC** project were as follows:

Objective 1 Charting the ICT trust and security landscapes of Brazil, India and South Africa and their initial match to EU trust, security and privacy themes;

Objective 2 Prioritisation of the EU influenced vision and research directions amongst the new countries (Brazil, India and South Africa), including alignment of work programmes;

Objective 3 Global alignment, consensus and outreach of the European visions and challenges across all targeted countries;

Objective 4 Definition of Tangible International Activities including establishing success metrics and setting up projects.

As depicted in table 1 below, there are four BIC Work Packages (WPs), with leaders from the four project partners. Figure 1 below illustrates the overall WP actions and associations across all the WP's:

Table 1. Work Package titles and leadership

Work Package (WP) Title	WP Leader (WPL)
WP1: Project Management (incl. Events organization and Dissemination)	P01 - Waterford Institute of Technology
WP2: Platform for International Collaboration and consensus building	P02 - TU Darmstadt
WP3: Input to the design of future research programmes	P04 - Ecole Nationale Supérieure des Télécommunications
WP4: Building the International Co-operation community.	P03 - ATOS



Figure 4. Overall Work package structure

Work package 1 [*Project Management (incl. Events organization and Dissemination)*] focussed on the overall project management of the project, including financial administration for the project's events.

Work Package 2 [*Platform for International Collaboration and Consensus Building*] focused on building the INCO Cooperation platform of the project. This included the creation and support of the necessary structural components to provide the high level advisory roles, thought leadership and expertise in the different thematic areas in Trustworthy ICT for cooperation.

Work package 3 [*Input to the Future Work Programmes*] focussed on analysing the findings of the activities carried out in WP2 and WP4 with a view to provide research priorities of mutual interest for the EU and the BIC countries. The WP3 findings were looked at from both a bi-lateral (tactical) perspective as well as a multi-lateral (strategic) perspective. WP3 was responsible for the recommendations and road mapping activities of the project.

Work Package 4 [*Building the International Co-operation community*] was responsible for the organisational aspects of the BIC events to enable the building of the BIC community. While the financial aspects were catered for in WP1, WP4 dealt with the more technical aspects of scoping, setting up, programme, organisational, and secretariat aspects of the BIC events.

Figure 2 contains a graphical representation and mapping of the entire work plan components of the BIC project showing their interdependencies and a mapping of the Work package components to the overall project objectives.

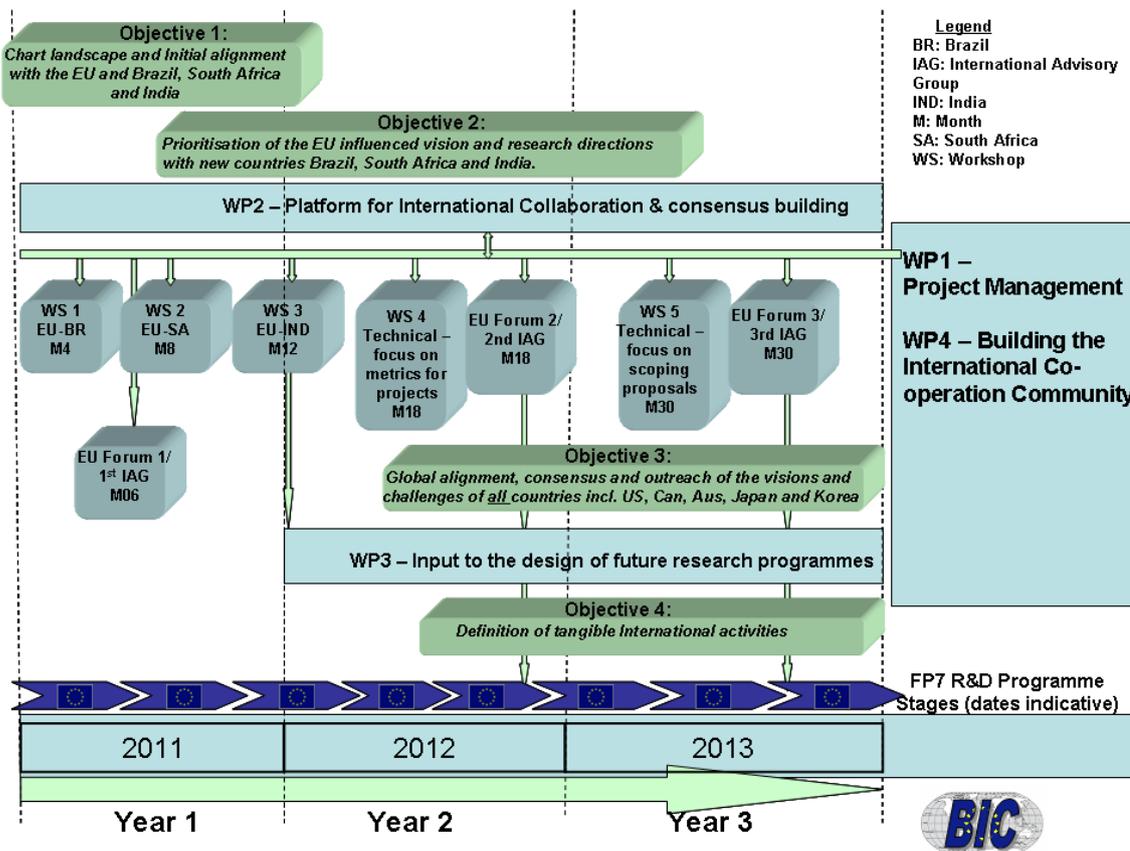


Figure 5. Objectives mapping into the WP components (from DOW)

1.3. A description of the main S&T results/foregrounds, achievement of the project's goals and objectives

The following section highlights the project objectives and goals and consequent achievements and results towards these for each objective during the entire project duration.

Objective 1. Charting the landscapes of Brazil, India and South Africa and their initial match to EU trust, security and privacy themes

Goal of Objective: Attaining a common level of understanding of goals, background and drivers for the new countries of Brazil, India and South Africa. The bringing together of research programmes must be addressed on a continuous basis where the interactions are mutually beneficial to all concerned especially when identifying and prioritizing the global trust and security challenges to address together.

Achievements: This objective was the main focus of the first year of the project. It was initially somewhat difficult due to the need to address each country in a bi-lateral fashion but the annual forum was a good way to achieve this goal. However, the India event in year 1 was scheduled after the first annual forum, which was out of the control of the BIC project. This was addressed by requesting to have a small delay on the first annual forum (from M09 to M11) to enable the project to make initial contacts within India before the first annual forum took place. This was a very successful move as we were able to include members from the India community in the first annual forum as a direct result. It was clear from the results in the first 12 months that the scope and priorities of the various communities would remain different as the project progressed. However, there were some common topics of interest amongst the trust and security communities and to keep the interest of all of the parties, a balanced approach was taken to set up and focus the future activities around these topics. Some examples include approaches to improve global cyber security, network security, and human oriented approaches to trust and security.

Key results towards the objectives:

D4.1 Cooperation Workshop number 1 (EU - Brazil), February 2011; <http://www.bic-trust.eu/events/eu-brazil-cooperation-workshop/>

D4.3 Cooperation Workshop number 1 (EU – South Africa, August 2011); <http://www.bic-trust.eu/events/eu-south-africa-cooperation-workshop/>

D4.3 Cooperation Workshop number 1 (EU – India, December 2011). <http://www.bic-trust.eu/events/eu-india-cooperation-workshop/>

Objective 2. Prioritisation of the EU influenced vision and research directions amongst the new countries (Brazil, India and South Africa), including alignment of work programmes.

Goal of Objective: To facilitate a consensus process through a forum based approach consisting of at least one workshop event per year involving programme management from the countries and researchers from the EU and the international cooperation countries in order to prioritise the selection of themes and topics of maximum impact to the EU. Over the course of the project, BIC utilized its international liaisons (contacts, visits, site workshops, etc) to ascertain complementary competences, common markets, and areas where the cooperation is clearly of mutual benefit starting from the EU value perspective. This formed an on-going process and drove the content of the international events organized by BIC.

Achievements: In the first year, this was a key focus within the bi-lateral cooperation workshops, BIC Annual Forum planning session held in July 2011 in cooperation with the SysSec event, where EU priorities were factored into the theme building for the first BIC Annual forum held in November 2011, during which the three WGs of BIC were decided and scoped. EU prioritisation areas were key focus points and drivers for the presentations and discussions and eventual reports from the workshops.

During the second year of BIC, this objective was a key focus of the BIC session at the CSP EU Forum in April 2012, the first BIC Working groups workshops in June 2012, and the BIC Annual Forum in November 2012. The results are documented in the deliverables shown below.

This objective continued in year 3 and was a focus of the BIC session at the CSP EU Forum in April 2013, and the BIC International workshop held in June 2013. It was also a strong point in the setting up of the Extended Working Groups, where the project wrote specific contextualised position papers for each country and these were used as a starting point for each of the in – country Extended Working Groups. These position papers have been included within the annex of deliverable D3.2, Final recommendations report on future global research challenges in ICT trust and security. The priorities are documented in the deliverables shown below.

Key results towards the objective:

D4.2.a BIC planning session, July 2011 <http://www.bic-trust.eu/events/bic-session-syssec-workshop/>

D4.2.b BIC Annual Forum/IAG meeting, November 2011. <http://www.bic-trust.eu/events/1st-bic-annual-forum/>

BIC session at the CSP EU Forum in April 2012. <http://www.cspforum.eu/>

D3.1 Interim report on Future global research challenges in ICT Trust and Security with input from the IAG, May 2012. http://www.bic-trust.eu/files/2013/01/D3.1_BIC_final_new.pdf

D4.5 Technical Workshop on metrics and measurements for realising projects, June 2012. <http://www.bic-trust.eu/files/2013/01/D4.5-BIC-WG-WS-report-V1.pdf>

D4.6 Annual EU Forum/IAG meeting, November 2012. <http://www.bic-trust.eu/events/bic-forum-2012/>

D2.4 Report on prioritized Trust and Security themes, May – June 2013. http://www.bic-trust.eu/files/2013/01/D2.4-RankedPriority_V1.0.pdf

D4.7 Open workshop on scoping proposals for international projects (BIC International workshop on Trustworthiness, Accountability and Forensics in the Cloud - TAFC 2013, 6-7th June 2013). <http://www.bic-trust.eu/events/tafc2013/>

D3.2 – Final recommendations report on future global research challenges in ICT trust and security, Dec. 2013. http://www.bic-trust.eu/files/2013/01/D32-Final-Recommendations_report_V2.0.pdf

Objective 3. Global alignment, consensus and outreach of the European visions and challenges across all targeted countries;

Goal of objective: This objective was to examine whether global alignment and convergence is possible, gain consensus on priority research topics in ICT security, privacy and trust across all the BIC countries with respect to programme management and research communities.

Achievements: Although not a primary focus during year 1, this objective actually started in year 1 with the build-up of the International Advisory Group (IAG) of BIC, the BIC planning session in July 2011 and the holding of the BIC Annual Forum in November 2011. Also contributing to this objective during the second year was the BIC session at the CSP EU Forum in April 2012 and the BIC WGs Workshops in June 2012. In addition, the BIC project took a number of steps to ensure the

continuation and enhancement of the good contacts made prior to the BIC project, in other projects and initiatives (e.g. EU-India Spirit and Synchroniser projects). Through the BIC sponsored events, the project indeed began to scope the work groups themes and membership based upon the programme-level development activities within many of the participating countries. The approach, strategy and continued recruitment of the membership of the International Advisory Group (IAG) formed part of this objective with a significant focus only on the BIC countries.

In the final year of the project, to ensure maximum global outreach and impact, BIC joined forces with a number of international collaborators including several EU FP7 projects with a like-minded interest to foster joint international activities in trustworthy ICT research, in submitting a workshop proposal to the 7th IFIP WG 11.11 International Conference on Trust Management (IFIPTM 2013)². Amongst fierce competition for workshops, the BIC application was successful for the two day time slot following the 7th IFIPTM 2013 in the same venue. As a result, BIC, along with the IP A4Cloud, joined together with the National Science Foundation funded DIMACS Center for Discrete Mathematics and Theoretical Computer Science, and the regional UK and Ireland branches of the Cloud Security Alliance (CSA) in organising an international workshop on Trustworthiness, Accountability and Forensics in the Cloud (TAFC 2013) in Malaga, Spain on 6-7th June 2013. The international workshop brought together experts from trust and security, cloud computing, forensics and other disciplines to discuss collectively how public and private sectors as well as the research communities can increase the confidence in the use of cloud computing to deploy and use innovative services by citizens and businesses.

The BIC IAG Annual Forum for 2013 was co-located with the prestigious ICT 2013 event held in Vilnius, Lithuania during 6-8th November, 2013. The final Forum focused on opportunities for International cooperation in relation to ICT & trust and security in Horizon 2020, the accomplishments of the BIC project during the previous year, gathering feedback for the key findings on priority research areas, act as a gathering point for other projects/initiatives to establish synergies with the BIC community, and making key recommendations for the future period, including post BIC. As the BIC project was concluding in December, 2013, this final annual forum took on an added significance towards making recommendations for the medium to long term strategy. These findings were captured in the report of the event D4.8, and further analysed within the project's Deliverable D3.2, Final recommendations report on future global research challenges in ICT trust and security.

Key results towards the objectives:

D4.2.a BIC planning session, July 2011 <http://www.bic-trust.eu/events/bic-session-syssec-workshop/>

D4.2.b BIC Annual Forum/IAG meeting, November 2011. <http://www.bic-trust.eu/events/1st-bic-annual-forum/>

D4.5 Technical Workshop on metrics and measurements for realising projects, June 2012. <http://www.bic-trust.eu/files/2013/01/D4.5-BIC-WG-WS-report-V1.pdf>

D4.6 Annual EU Forum/IAG meeting, November 2012. <http://www.bic-trust.eu/events/bic-forum-2012/>

D2.4 Report on prioritized Trust and Security themes, May – June 2013. http://www.bic-trust.eu/files/2013/01/D2.4-RankedPriority_V1.0.pdf

D4.7 Open workshop on scoping proposals for international projects (BIC International workshop on

² <http://conf2013.ifiptm.org/>

Trustworthiness, Accountability and Forensics in the Cloud - TAFC 2013, 6-7th June 2013). <http://www.bic-trust.eu/events/tafc2013/>

D4.8, IAG Annual Forum meeting 2013, Nov. 2013. <http://www.bic-trust.eu/events/bic-iag-annual-forum-2013-at-ict-2013/>

D3.2 – Final recommendations report on future global research challenges in ICT trust and security, Dec. 2013. http://www.bic-trust.eu/files/2013/01/D32-Final-Recommendations_report_V2.0.pdf

Objective 4. Definition of Tangible International Activities including establishing success metrics and setting up projects.

Goal of objective: This objective will ensure successful uptake and execution of BIC results by providing bridging and awareness raising mechanisms between the countries ensuring that themes that are important in multiple countries will be made available to everyone and result in subjects of other collaborations.

Achievements: One of the main coverage areas of BIC was the determination and identification of “success metrics” for international cooperation and collaboration. A dedicated workshop was organised by BIC on this topic in June 2012 [D4.5] and the results from that workshop were presented during the BIC IAG annual forum in November, 2012 [D4.6] for further discussions and consensus. At the BIC Annual Forum 2012, it was suggested that there was a need to clarify the aim of this exercise as there was some initial confusion at the June ’12 workshop about the applicability of criteria for success metrics, whether the focus should be on individual project(s) or the programme as a whole. This point was addressed and during the discussions at the IAG session, it was clarified that the criteria for success metrics would indeed be at the programme level and not at the project level. More details on this can be found in the reports referenced below.

In terms of fostering tangible international activities, the BIC project has been actively promoting a strategic oriented approach advocating the need for a multi-lateral model in addition to the current tactical oriented bi-lateral models, for international cooperation in trustworthy ICT. A new extended model has been proposed by the IAG members based on the extension of the original BIC model of IAG and core working groups (CWG) including an Extended Working Group (EWG) in each country. In this proposed structure, EWGs are defined as the country- specific arms of the Core Working Group (CWG) of BIC. Although outside the original scope of BIC, the India members of the IAG and WG3 were the first to establish their EWG holding a kick off workshop in New Delhi during May, 2013, with the support of the India government and the European Commission delegation in New Delhi, India.

With this strong impetus from the India EWG, the South Africa EWG was launched with eight members joining during the annual ISSA 2013 conference in Johannesburg and a follow up session during EU-Africa ICT P8 Forum in December, 2013 resulted in an expansion to include researchers from across the Africa continent. The Brazil EWG launched on 22nd October, 2013 in São Paulo, Brazil at the BIC Brazil EWG launch workshop on Management Strategy, Structure and Approach on Building International Cooperation on Research & Innovation in Trustworthy ICT with strong support from Brazilian National Council for Scientific and Technological Development (CNPQ) and the European Commission delegation of Brazil.

In addition, a follow up workshop was held of the India EWG, whose focus was on next steps forward for the BIC India EWG and planning for the continuation of their activities after the conclusion of BIC. Follow up events are now being planned in Q1, 2014 in each country. These

EWGs are now being led by eminent members of the Trust and Security communities in each country and gaining the support of their programme management in each country. EWG Brazil is being led by Professor Ricardo Dahab of the University of Campinas (UNICAMP); EWG India is being led by Professor M. P. Gupta of IIT Delhi; and EWG Africa is being led by Professor Marijke Coetzee, University of Johannesburg.

The structure of the entire cooperation platform of BIC can be found in D2.5, Final Report of the Working Groups Activities, as shown below.

Key results towards the objectives:

D2.5 Final Report of the Working Groups Activities, http://www.bic-trust.eu/files/2013/01/D2.5_BIC_WG_V1.0.pdf

D4.5 Technical Workshop on metrics and measurements for realising projects, June 2012. <http://www.bic-trust.eu/files/2013/01/D4.5-BIC-WG-WS-report-V1.pdf>

D4.6 Annual EU Forum/IAG meeting, November 2012. <http://www.bic-trust.eu/events/bic-forum-2012/>

Although not formal deliverables, reports have been produced for these BIC events:

India EWG launch, May, 2013: <http://www.bic-trust.eu/2013/05/22/bic-extended-working-group-ewg-launched-in-india-22nd-may-2013/> and report at <http://www.bic-trust.eu/files/2013/07/BIC-DeitY-EWG-report-final.pdf>

India EWG Workshop 2, October, 2013: <http://www.bic-trust.eu/events/bic-india-ewg-oct2013/> and report at <http://www.bic-trust.eu/files/2013/10/BIC-DeitY-EWG-Oct-13-report.pdf>

South Africa EWG launch, August, 2013, and Dec., 2013: <http://www.infosecsa.co.za/> (BIC session afternoon of Day 1, 14 August, 2013) <http://www.bic-trust.eu/2013/12/02/bic-south-africa-ewg-dec2013/>

Brazil EWG Workshop, October, 2013 <http://www.bic-trust.eu/events/bic-brazil-ewg-launch-meeting/> and report at <http://www.bic-trust.eu/files/2013/10/BIC-Brazil-EWG-launch-WS-report.pdf>

1.4. The potential impact (including the socio-economic impact and the wider societal implications of the project so far) and the main dissemination activities and exploitation of results.

Impact 1) Changing the mind-set from bi-lateral INCO activities to focus instead on multi-lateral INCO activities for Trustworthy ICT.

The BIC project has advocated a fundamental shift from tactical oriented bi-lateral INCO activities towards a more strategic oriented multi-lateral approach for INCO, especially for cyber security, as shown in figures 3 and 4 below. As a result, one of the main objectives of the BIC project was to develop a structure and framework for moving towards this direction in H2020. While it is still a bit unclear on how this will be carried forward into H2020, the project has made concrete recommendations on moving forward on this approach in D3.2, Final recommendations report.

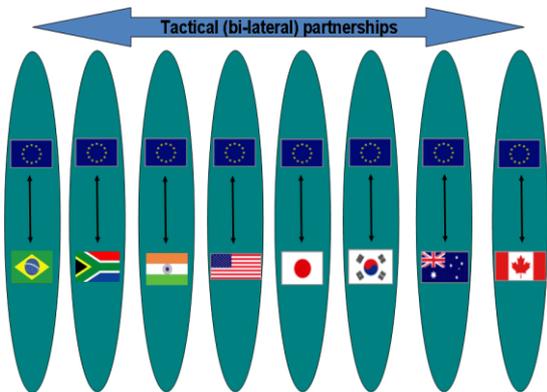


Figure 6. Tactical (bi-lateral) approach

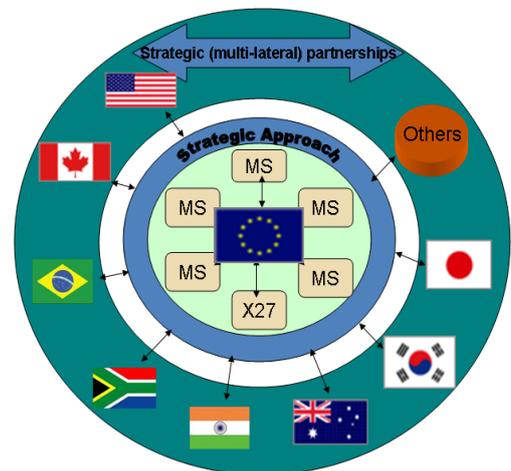


Figure 7. Strategic (multi-lateral) approach

Through their working group 3 (programme management / funding focus), the project made sure to include members from other international cooperation projects with long standing expertise in both bi-lateral and multi-lateral international cooperation (working with governments and/or specific agencies) to enable the following outcomes:

1. discuss their experiences and insights in order to brainstorm a strategy to move forward on international cooperation in future calls for collaborative research;
2. Forming the current bi-lateral (and potentially overlapping) country to country cooperation into a comprehensive and coordinated global cooperation.

In addition to BIC, a wealth of experiences was represented from the following international cooperation projects: IST Africa, EuroAfrica-P8, FEED, AUS-ACCESS4EU, PACE-Net, EU – India Spirit, Synchroniser, Euro-IndiaGrid2, OpenChina-ICT, Latin America LEADERSHIP, FIRST,

FORESTA, PAERIP, SEACOOOP, EuroAfrica-P8, IST-EC2 (EU funded FP6 project to foster research in ICT between Europe & Canada), and AMERICAS.

These projects gave their insights on their experiences and suggestions for improvement and the main point was agreement that it is a very good idea to move towards a more multi-lateral strategic position. However, in the discussions, it wasn't very clear how this strategy shift could occur within the current mechanisms that focus bi-laterally on a number of distinct regions. The BIC project has developed a cooperation platform that could be used, including the International Advisory Group, Core Working Groups and in-Country Extended Working Groups that we feel is a good starting point towards moving towards the strategic multi-lateral approach, and look forward to something along this structure being adopted within the lifetime of H2020.

Impact 2) The establishment and setting up of an EU-based international cooperation platform, including an International Advisory Group, Core Working Groups, and Extended Working Groups, all for the purpose of developing a longer term strategy for international cooperation for Trustworthy ICT that will continue after the lifetime of BIC.

The long term strategic plan for BIC from the very start, and also a major success indicator for the project, was to foster International Cooperation (INCO) such that the BIC target countries would develop a self-driven long term effort that can sustain itself after the conclusion of the BIC project. This plan has been successfully executed by building upon BIC's existing Core Working Groups (CWGs) structures to develop the "EWGs = (Extended Working Groups)" for post-BIC sustainability. In each of the BIC countries, the EWGs have now been successfully established with support and participation from leading Governmental programme management, eminent researchers, industry, and the European Commission delegations.

This development was possible due to the flexibility and foresight of the BIC IAG members, who specifically thought of this particular structure while brainstorming success metrics and ways to maximise impact and lifetime of the cooperation platform being established within BIC. The original structure of the BIC cooperation platform, as shown in Figure 5 below, was based on a traditional mixture of top-down and bottom-up approaches, using an IAG (International Advisory Group) being supported by three 'Core' Working Groups (CWGs). Two of the core working groups, 'WG1: Human Oriented Trust and Security' and 'WG2: Network Information Security/Cyber Security' were focussed on technical areas while the third working group 'WG3, Programme and Funding Focus', focused on activities related to the processes and mechanisms involved in facilitating and supporting international cooperation in Trustworthy ICT.

As the project progressed and evolved, moving into the phase where a longer term strategy was being brainstormed, it was suggested by members of the IAG (spearheaded by the India delegation and backed by the overall International Advisory Group) that BIC's impact could be greatly enhanced if the foundations to sustain INCO were developed by BIC to last beyond the conclusion of the project. The suggestion was to develop an expanded structure based upon a "Local Interests and Ownership" mechanism to develop a longer term sustainable model that would enable a larger grouping of key researchers to meet on a regular basis to promote their work in a stronger collective voice to their own local funding agencies and feed into the wider BIC community.

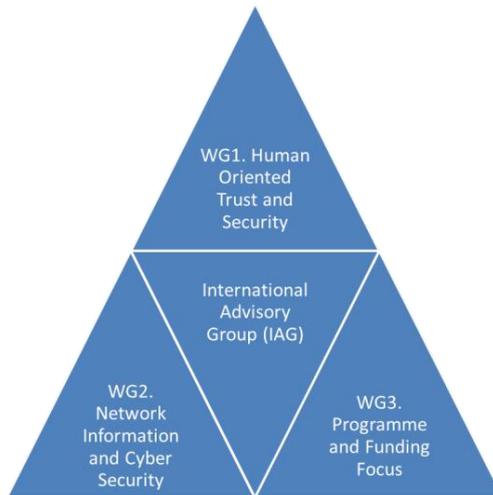


Figure 8. Original structure of BIC project and IAG/WGs

Thus, the concept of setting up in-country “EWGs (Extended Working Groups)”, as shown in figure 6 below, was brought to the discussions during the BIC June 2012 workshop³ and further developed and ratified at the BIC IAG Annual Forum in November, 2012⁴. An EWG is defined as an in-country working group set up in each BIC country, that would have a continual charter, an appropriate support mechanism and a rationale to continue its work effectively after the BIC project concludes. The support would be via the local funding agency “in-country” for the short term until other funding mechanisms could be found (e.g. H2020). The rationale for continuing this work through the EWGs, is to provide assistance to the funding agencies involved when building future research programmes that pertain to international cooperation and trustworthy ICT (although it has been suggested that the concept could be extended to other domains to have a greater scope of coverage in H2020).

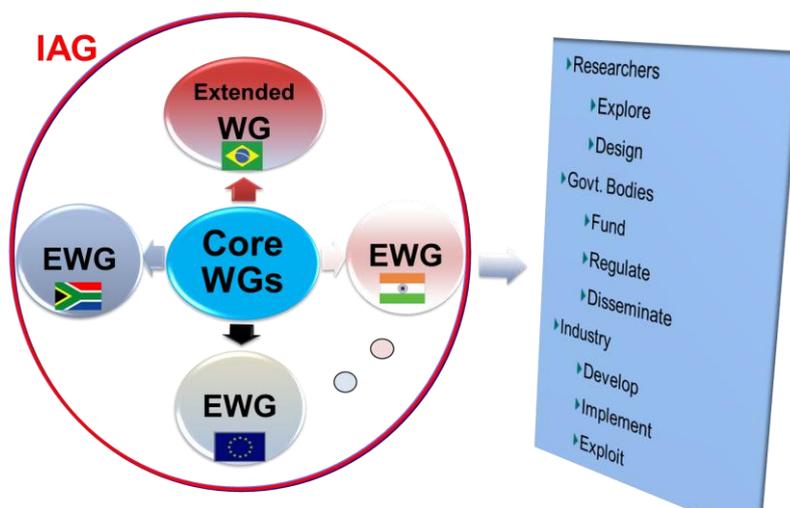


Figure 9. Revised structure of BIC project including IAG-CWGs-EWGs

³ <http://www.bic-trust.eu/files/2013/01/D4.5-BIC-WG-WS-report-V1.pdf>

⁴ <http://www.bic-trust.eu/files/2013/01/BIC-Annual-forum-2012-report-Final.pdf>

Therefore, it has been the sustained intent of BIC to build into the spirit and methodology of the cooperation platform components (IAG & WGs) the wherewithal to ensure successful outcomes with a strong focus on a longer term post-BIC strategy for implementation and take-up. This has been realised with the establishment of the in-country Extended Working Groups, which can proactively and collectively gather local support while working closely with the (local and EU) policy makers in the promotion of future work programmes. This will sustain continuing engagement with the EU and is also a potential forum to open up new possibilities for EU – International collaborations, as the same model can be used in other countries (continuing the ‘snowball effect’ as experience already in the BIC countries).

There is a strong message from the BIC community participants that there is a need to make sure that the worthwhile initiatives being undertaken are not allowed to dissipate and decline after the lifetime of the project. There should be a clear focus on implementation, to avoid frustrations caused by improving collaborations with little or no implementation, resulting from the lack of processes or mechanisms available to foster these kinds of activities even though they are considered to be highly relevant and important.

In addition, within the final recommendations report, the project recommends strongly that some action is taken to maintain the activities of the International Advisory Group, whether it is through existing initiatives, or setting up a new initiative in H2020. A globally structured IAG is crucial to the on-going engagement of the right stakeholders to regularly co-ordinate cross domain activities related to International Cooperation and to get a bigger and better picture of what is going on in other areas within the European and international Research & Development & Innovation (R&D&I) programmes. In addition, a recommendation regarding the continuance of the CWGs via the newly-established NIS Platform⁵ is made since the majority of the BIC CWG members are now involved in this initiative, many in leading roles of the NIS Platform WGs and clusters within the WGs.

Impact 3) Raising the profile of international cooperation for Trustworthy ICT from an early ‘nascent’ stage to one of major importance as now expressed for Horizon 2020.

When the BIC project started, there was mainly a focus on the EU approaches for Trustworthy ICT in the Framework programmes. Today, the community is typically raising the need for International cooperation on a very regular basis and it features heavily within the H2020 programme. Thus, we feel that the BIC project has achieved significant impact in the bringing together of the EU and international community members in three categories of events as shown in Figure 7. For all of the BIC events, high quality reports have been written and distributed to the community.

⁵ <http://ec.europa.eu/digital-agenda/en/news/nis-platform-kick-meeting-working-groups>

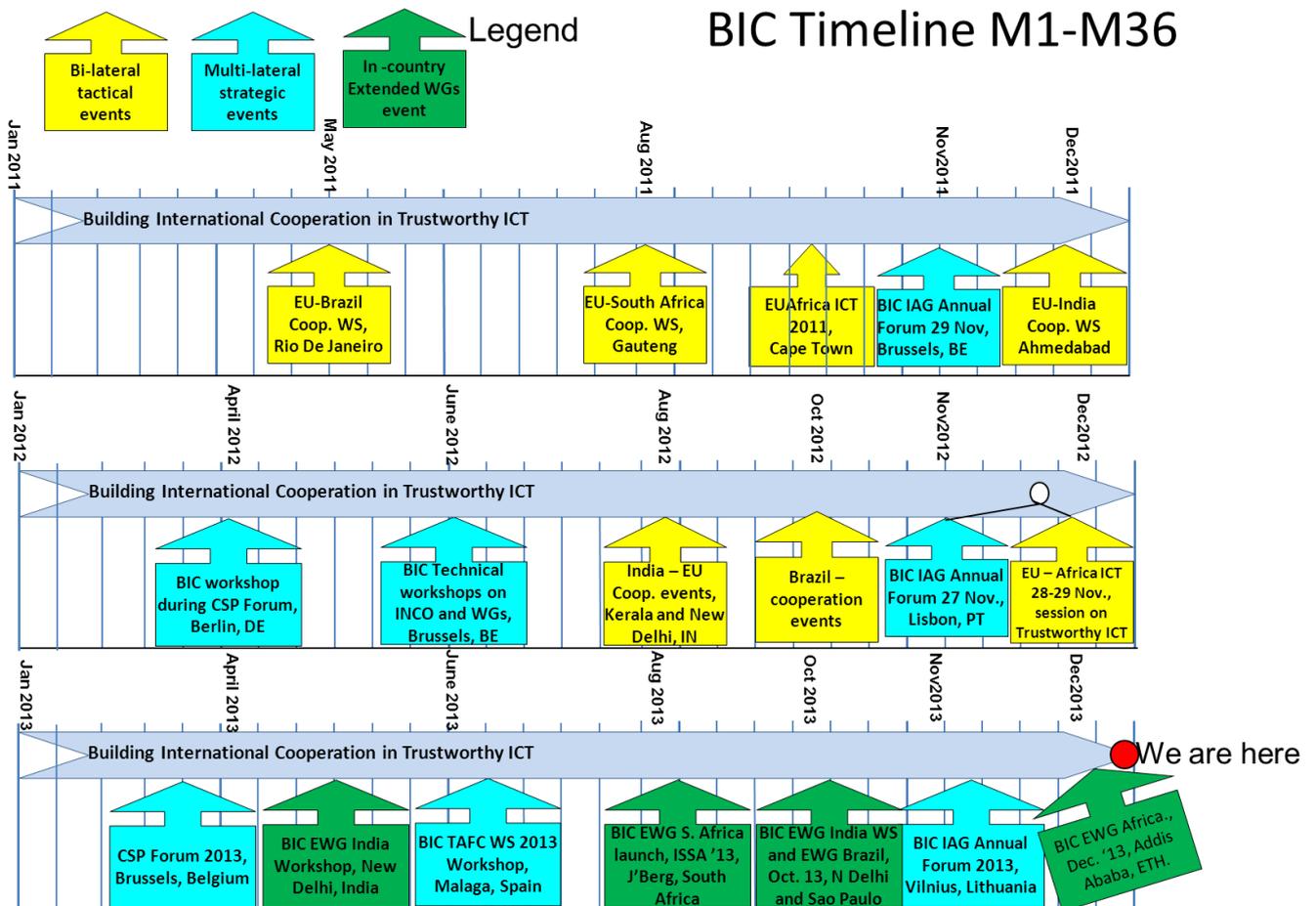


Figure 10. BIC Event categories and full listing of BIC events

Impact 4) Providing analysis on prioritised research topics and recommendations, including road mapping details for International cooperation in trustworthy ICT.

For each of the BIC countries, the project carried out an analysis of the situation with regard to mutual beneficial research topics containing the following easy to follow sections: Background; Research challenges; and the priority research topics of interest. Following this, an extensive mapping to the EU research topics and each other was carried out along with a follow up survey resulting in a list of 6 ranked research topics. These were made available to the European Commission in brief supporting documents (e.g. EWG reports) and included as part of BIC deliverables, D2.4 and updated in D3.2. In addition, these have also been made available to other pertinent constituencies, including various working groups related to the countries involved and the EU Commission Units involved in the planning of H2020 bi-lateral events in Q2, 2014 (e.g. the EU delegates in each country and DG CONNECT – F.3 – Programme coordination, who are planning to organise events during 2014 in a number of the BIC countries in relation to furthering cooperation in H2020). In fact, the Unit F.3 has acknowledged that the participation of the BIC-formed EWGs would be a tremendous benefit to the upcoming workshops in 2014.

The six priority topics identified as potential topics by the EU and Brazil, India, South Africa researchers for mutually beneficial cooperation in the area of trust and security are:

7. Research in Cyber security, including an international data sharing framework;
8. Trust and Privacy;
9. Mobile security, Social media and Cloud security;
10. Security of Applications and data protection;
11. Identity management, accountability frameworks;
12. Future Internet Security.

When developing their final recommendations for the BIC project in WP3, the project presented their recommendations based upon two different but related, groupings: a *strategic group* and a *tactical group*, with their specific rationale for inclusion detailed accordingly. The two recommendation groupings, as shown in Figure 8, are not meant to be consecutive, but to address two parallel aspects of the field of necessary international RTD. The groupings are defined as follows:

- **Strategic Recommendations (SR):** setting out the frameworks, common understandings, and overall procedural and governance landscape that takes into account the diversity of social, economic, and cultural norms and requirements worldwide. These can be considered as ground rules and enabling actions that must take place to facilitate effective outcomes of international cooperation in this field in order to carry out the specific (tactical) recommendations.
- **Tactical Recommendations (TR):** more specific or concrete recommendations to progress towards the required building blocks and their relationships that will enable a global trustworthy ICT ecosystem. Trustworthy ICT is defined as ICT that is secure, reliable and resilient to attacks and operational failures; guarantees quality of service; protects user data; ensures privacy and provides usable and trusted tools to support the user in his security management. It is expected that the newly formed Extended Working Groups (EWGs), in conjunction with their supporting governments and also continued interaction with the EU Commission delegation will also continue to add further to the tactical recommendations in the near future as they continue their work.

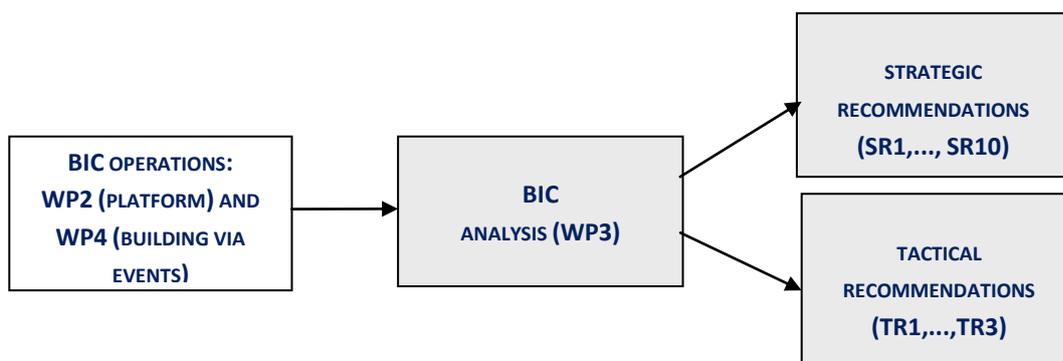


Figure 11. BIC recommendations structure

The long-term **Strategic Recommendations** (H2020 and 2015-2025) for international cooperation in the field of Trustworthy ICT research and technological development are:

1. There is a need for new global approaches, meta-models and methodologies;
2. Global cyber security is a moving landscape of attacks, surveillance and failures;
3. International cooperation research is an essential H2020 requirement;
4. The international community must agree on grand principles;
5. There must be a shift in emphasis from the tactical bi-lateral collaborations to a strategic multi-lateral approach;
6. There is a need to keep an international open-ness in the specifications of services and standardisation;
7. There is a need for an international mobility model approach;
8. There is a need for an international approach dealing with the massive abstraction of software and data (e.g. resilience of virtualisation);
9. An international cooperation is needed to deal with the fragility of interconnections;
10. We need an international approach to steer the evolution and strengthening of the digital ecosystem in terms of network security governance and surveillance.

The **Tactical Recommendations** are:

4. The work of the BIC project, or its structural components (IAG, WGs) should be continued, and expanded to other countries, in the long term;
5. The EU and BIC countries should formally recognise the Extended Working Groups as the nodal in-country agency/body to be called upon for discussions regarding future H2020 (and beyond) international cooperation activities;
6. The EWG should draw up and formalise their terms of references / objectives in synchronisation with one another and get these ratified by their respective Programme Management / Governments.

The definitions, rationale, steps required and suggested road mapping (timing) information for each of these recommendations are detailed in the BIC report entitled D3.2. Final recommendations report on future global research challenges in ICT trust and security, which is available at http://www.bic-trust.eu/files/2013/01/D32-Final-Recommendations_report_V2.0.pdf.

Impact 5) Permanently raising the EU BIC brand name in the international communities and developing long lasting relationships with other projects and initiatives, including programme management.

The BIC partners have forged strong relationships with other like-minded projects and initiatives within their own and external dissemination activities. A sampling of these relationships can be found here.

Effectsplus⁶ and SecCord⁷ project clusters - WIT and ATOS have been involved in the project clusters of the Effectsplus coordination action project, and the subsequent SecCord coordination action project from DG-CNECT's Unit H.4, Trust and Security. The BIC coordinator was the Chair of the Networking and Coordination cluster⁸, which involves all CSAs and NoEs related to ICT Trust and security and other interested projects/initiatives in a coordinating role. The purpose of this cluster is to ensure that the projects are all well aware of the work of other projects and to ensure that there

⁶ <http://www.effectsplus.eu/>

⁷ <http://www.seccord.eu/>

⁸ <http://www.effectsplus.eu/networking-coordination-cluster/>

is no overlap and to foster better synergy between their on-going activities. Currently, participating projects in the NW and Coordination cluster include: BIC, SECCORD, NESSoS, STREWS, CIRRUS, ATTPS, FIRE, SysSec, CYSPA, and ECRYPT II. A report of this activity can be found at http://www.cspforum.eu/uploads/CSP_Track14_Report.pdf

European Union Agency for Network and Information Security (ENISA)⁹ - The BIC project has a strong relationship with ENISA, the EU “cyber security” agency, whose brief is to achieve a high and effective level of Network and Information Security within the European Union. There has been the involvement of ENISA at the majority of the BIC open forum related events and, conversely, BIC partners have been involved in ENISA activities e.g. in 2012, WIT were involved in an expert group on the “Consumerisation of IT: Risk Mitigation Strategies”. http://www.enisa.europa.eu/activities/risk-management/evolving-threat-environment/COIT_Risk_Mitigation_Strategies

EU-India Fostering COOPERation in Computing Systems (EUINCOOP)¹⁰ – BIC partner TUD is an Advisory Board member of this Coordination and Support Action (CSA) project that ran for 24 months from 1st October 2011 to 31st October 2013. This fruitful collaboration with another like-minded EU – India project involved cross-fertilization with existing European Commission funded international partners. BIC was able to play an influential role in reaching a wider audience of Indian academics, industrial leaders and government organisations to advocate Trustworthy ICT and systems-area cooperation between Europe and India.

BIC's interaction with EUINCOOP has proved very useful in the EU-India community building, and the high level contacts are helping promote the BIC Trustworthy ICT areas of co-operation.

SFI ISCA (Ireland) programme for Brazil and India. The Science Foundation Ireland - International Strategic Cooperation Award (SFI - ISCA) programme¹¹. Based on their role in BIC, Waterford Institute of Technology have been successfully included within the SFI ISCA Brazil¹² award (branded as Research Brazil Ireland - RBI¹³) during 2013/2014, and more recently have joined within the SFI ISCA India¹⁴ award starting in 2014/2015. The SFI ISCA consortia are a large grouping of Irish University level partners, who have demonstrated a strong background with international cooperation in the participating country. This cooperation with SFI ISCA Brazil for WIT has been very productive as it was possible to join the BIC Brazil EWG launch event with the Launch event of the RBI held the day before, thus ensuring that a maximum number of attendees were able to participate to the events. It is expected that there will be some SFI ISCA travel funds to complement the in-country government funds on offer for travel for post BIC EWG- related events. A similar model will be formed once the SFI ISCA India award comes on stream for WIT during the middle of 2014. It should be noted that the SFI ISCA awards are only for travel mobility and do not include research funding. However, it is still a very positive development and will assist in the continuity of at least one of the BIC partners continuing to play some role in the EWGS during 2014/2015. There is no such Irish fund for Africa yet, but there are very strong ties with the EuroAfrica-ICT P8 project, as well as IST Africa, which has an Irish

⁹ <http://www.enisa.europa.eu/>

¹⁰ <http://www.euincoop.eu/>

¹¹ <http://www.sfi.ie/international/isca/>

¹² <http://www.sfi.ie/international/isca/brazil.html>

¹³ <http://rbi.ie/>

¹⁴ <http://www.sfi.ie/international/isca/india.html>

coordinator (IIMC International Information Management Corporation Ltd.), so there will still be some scope for continued participation of BIC members to the Africa EWG also.

Network and Information Security public-private Platform (NIS Platform) The BIC project was involved with the Commission in running a session during CSP Forum that was looking at the ways the Coordination and Support Action (CSA) projects could contribute to the establishment of an NIS Platform as a key action of the EU Cyber security Strategy and aligned with the implementation of the NIS Directive. As a consequence, during the last six months of the BIC project, the EU Network Information Security Public Private Platform (NIS Platform), was launched with a set of kick off meetings for their Working groups during September, 2013¹⁵. The NIS Platform is developing a platform for trusted information sharing and the need for WGs with clear objectives and well-defined themes. Three working groups have been set up:

- WG1 on **risk management**, including information assurance, risks metrics and awareness raising;
- WG2 on **information exchange and incident coordination**, including incident reporting and risks metrics for the purpose of information exchange;
- WG3 on **Secure ICT research and innovation**.

The BIC partners are members of WG3 and play an active role in advocating the need for International cooperation in the NIS Platform.

Observer Research Foundation (ORF) is a multi-disciplinary public policy think tank based in India, engaged in developing and discussing policy alternatives on a wide-range of issues of national and international significance. Some of ORF's key areas of research include international relations, security affairs, politics and governance, resources management and economy and development. The fundamental objective of ORF is to influence formulation of policies for building a strong and prosperous India in a globalized world. ORF, in conjunction with the Federation of Indian Chamber of Commerce and Industry (FICCI¹⁶), organise the annual CYFY: The India Conference on Cyber Security and Cyber Governance. BIC has fostered a strong relationship with ORF in the last six months of the project and they have become members in the BIC India EWG and core working group no. 3 on programme management and funding focus.

¹⁵ <https://ec.europa.eu/digital-agenda/en/news/nis-platform-kick-meeting-working-groups>

¹⁶ <http://www.ficci.com/>

1.5. The address of the project public website, if applicable as well as relevant contact details.

The project coordinator, with input from all partners, has developed a comprehensive web portal located at <http://www.bic-trust.eu/>. The web portal has been designed to maximise user interactions in order to proactively help build an international research community in Trustworthy ICT. As shown in figures 9 and 10 below, the home page contains a direct link between the web site and BIC LinkedIn group has been set up and a dedicated section for BIC reports has been established providing easier access to the public material of the BIC project. The BIC project has an open Group in LinkedIn dedicated to Building International Cooperation for Trustworthy ICT and can be found at http://www.linkedin.com/groups?gid=4368051&trk=hb_side_g. In addition, the project has a dedicated Twitter account at https://twitter.com/BIC_Trust and actively contributes to and follows the DG Connect Unit H.4 (Trust and Security) twitter account https://twitter.com/EU_TrustSec, along with other relevant accounts dealing with international cooperation, privacy, security, trust, etc.

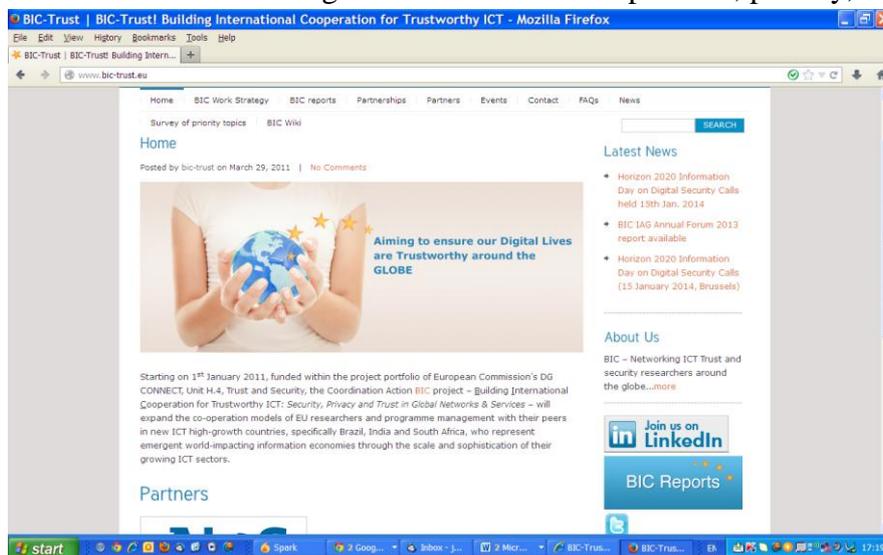


Figure 12. Home page with links to social media elements

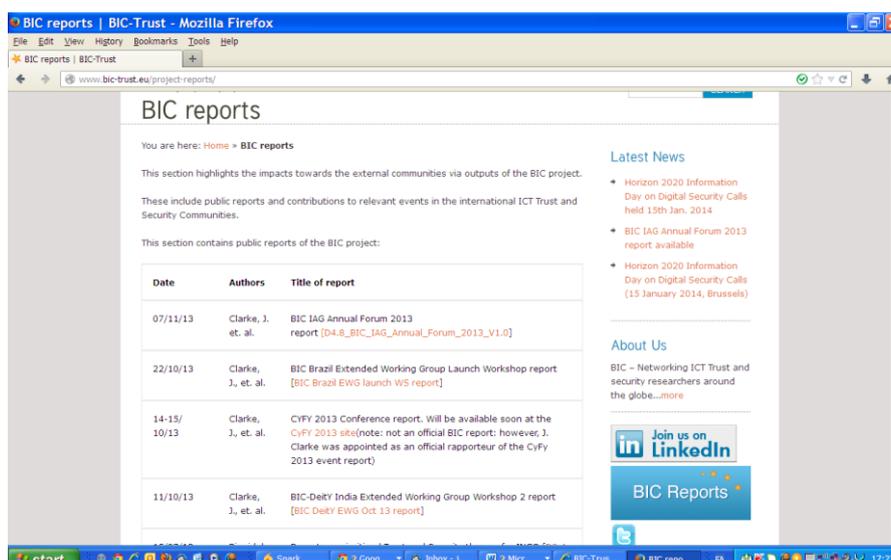


Figure 13. BIC reports section

The BIC project hosts a password protected Wiki-based system for the working groups and will continue to support this after the conclusion of the project. The BIC Wiki is located at <http://wiki.bic-trust.eu/>. The project coordinator has committed to keeping this wiki site available for the IAG-EWGs for at least a period of five years after the conclusion of the BIC project. The Wiki is directly linkable to and from the BIC main web site. Below are a number of screenshots of the BIC Wiki.

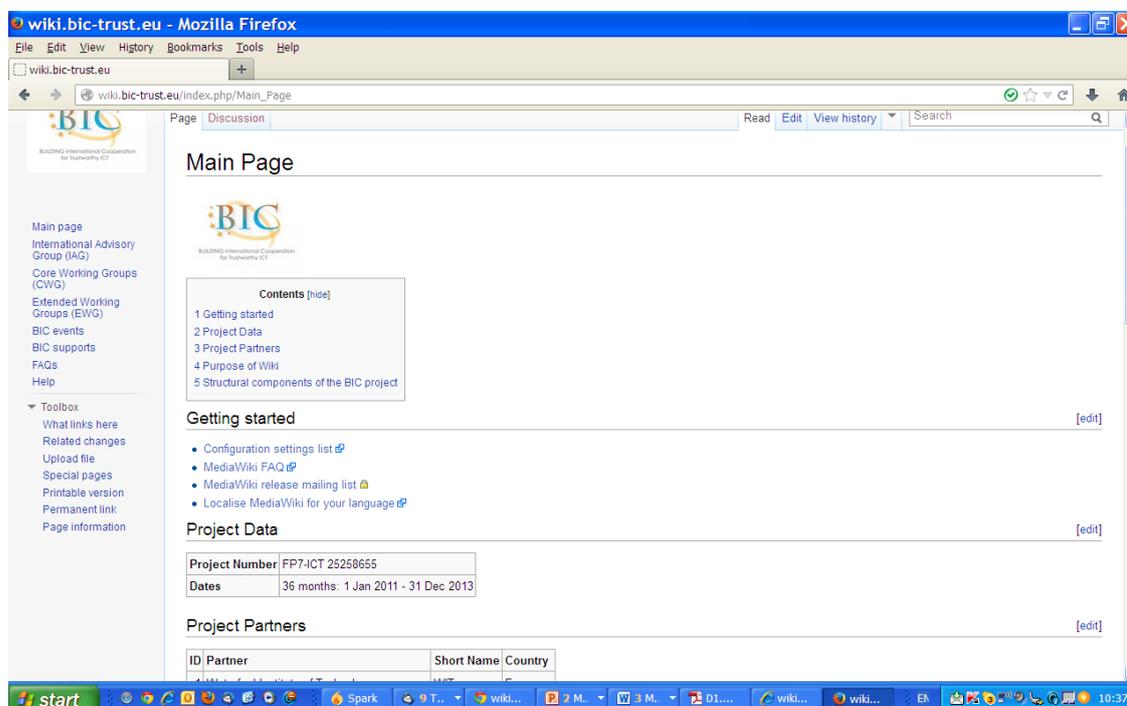


Figure 14. BIC Wiki – Main page

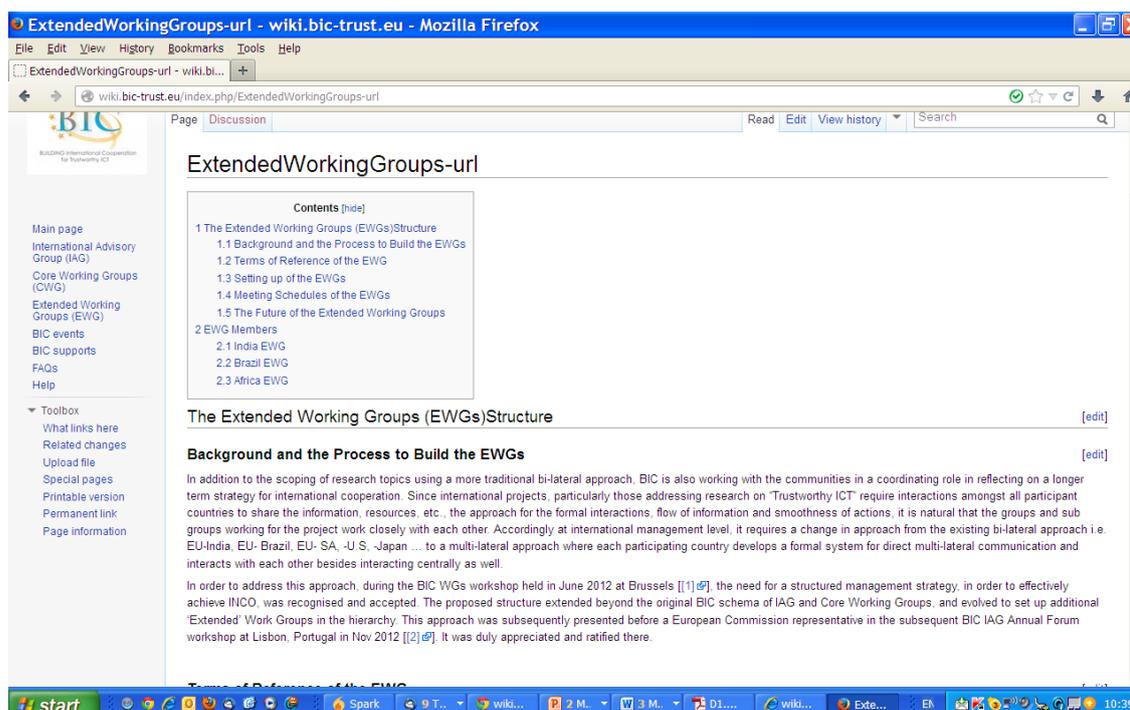


Figure 15. BIC Wiki – EWG page

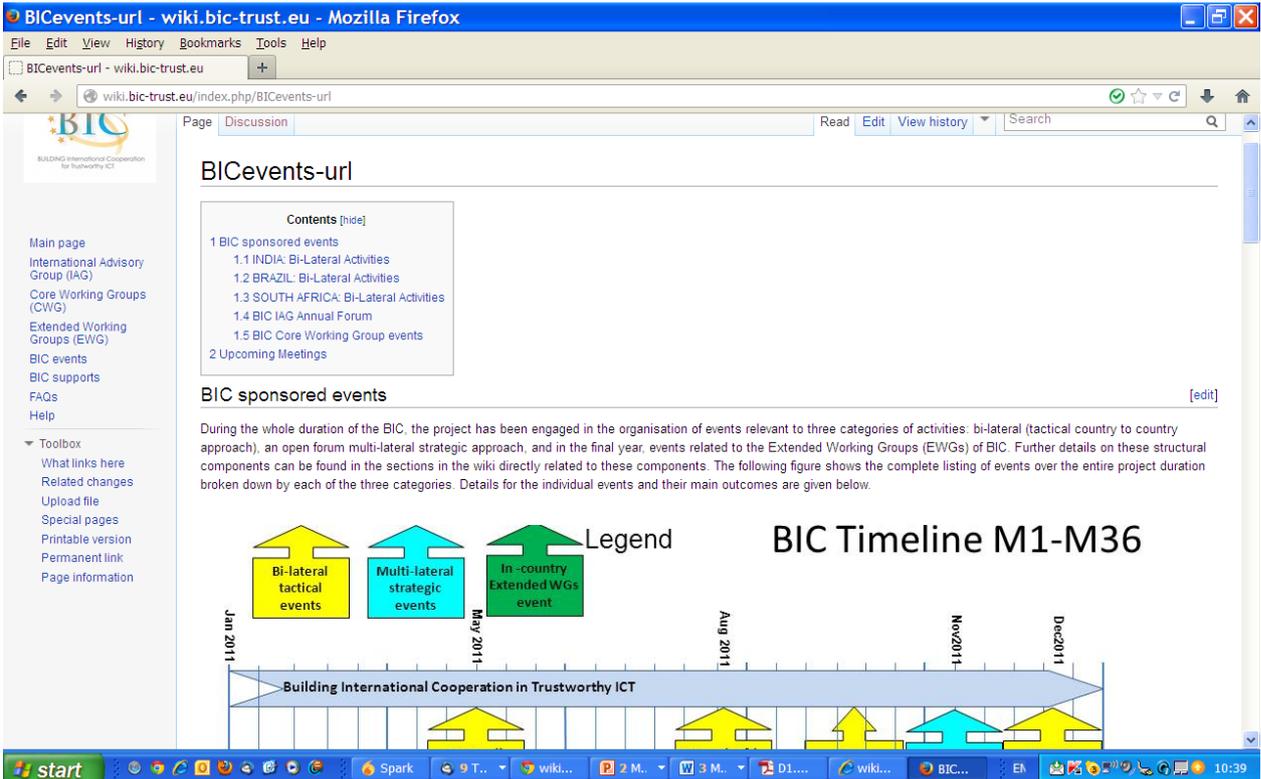


Figure 16. BIC Wiki – BIC Events

1.6 Use and dissemination of foreground

Due to the nature of the BIC Coordination action project, the partners participated to a large number of events for the specific purpose of making contacts and disseminating to the international community engaged in Trustworthy ICT.

As the BIC project was not a research project, there were only six occasions where the project partners successfully submitted papers to refereed conferences. However, there were significant numbers of opportunities for other dissemination activities carried out by the project. These events are all detailed in the project reports, and some are included in the accompanying tables in section A below:

- Deliverable D1.4, Interim Dissemination Plan, available at http://www.bic-trust.eu/files/2013/01/D1.4_BIC_Int_Diss_Plan.pdf;
- Deliverable D1.8, Final report on Dissemination Plan, available at http://www.bic-trust.eu/files/2013/01/D1.8_BIC_Final_Diss_Plan_V1.0.pdf.

The rest of this section contains photos and cover pages of a recent sampling of BIC events with links to full reports, followed by Section A comprised of dissemination measures, including any scientific publications relating to foreground. It also contains Section B, although this was not a direct goal of the project.



BUILDING International Cooperation for Trustworthy ICT



BIC – DeitY India Extended Working Group (EWG) Workshop / Brainstorming Session on Management Strategy, Structure and Approach on Building International Cooperation on Research & Innovation in Trustworthy ICT

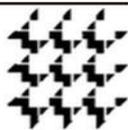
held on 21st May 2013 in New Delhi, India at the Department of Electronics
and Information Technology (DeitY), Govt. of India



In cover photo (L-R): Prof. M. P. Gupta, IIT Delhi; Mr. Abhishek Sharma, Beyond Evolution Technologies, Member BIC IAG; Prof. MM Chaturvedi, Ansal University, Member BIC IAG; Dr. Gulshan Rai, Director General CERT-In, DeitY, Member BIC IAG; Dr. Jaijit Bhattacharya, HP India and Prof. IIT Delhi; Mr. James Clarke, Waterford Institute of Technology, BIC coordinator; Dr. Saurabh Singh, HP India; Mr. Sanjay Bahl, Senior Consultant CERT-In, DeitY.

Report authors: James Clarke, Abhishek Sharma, Manmohan Chaturvedi with contributions from all participants.

Full report can be found at <http://www.bic-trust.eu/files/2013/07/BIC-DeitY-EWG-report-final.pdf>



**BIC International Workshop on
Trustworthiness, Accountability and Forensics
in the Cloud (TAFC 2013)**

Malaga, Spain, June 6–7, 2013

Organising Committee

James Clarke, Waterford Institute of Technology - TSSG, (co-chair)

Rebecca Wright, Rutgers University, (co-chair)

Julie Grady, HP Labs Bristol

Aljosa Pasic, ATOS

Siani Pearson, HP Labs Bristol

Keyun Ruan, University College, Dublin (UCD)

Rapporteurs

Session 1 - Lenore Zuck, University of Illinois at Chicago

Session 2 - Nick Papanikolaou, HP Labs, Bristol

Session 3 - James Clarke, Waterford Institute of Technology – TSSG

Session 4 - Karima Boudaoud, Ecole Polytechnique de Nice Sophia Antipolis

Session 5 - Mounib Mekhilef, Ability Europe Ltd.

Overall workshop report – Henning Arendt, @bc; Fernando Kraus Sanchez, ATOS; Michel Riguidel, Telecom Paris-Tech, and significant contributions from the organisers and rapporteurs.

Pre-proceedings publication and local support - M. Carmen Fernandez-Gago, Univ. of Malaga

Cover photo (L-R):

Manmohan Chaturvedi, Ansal University, Mike Burmester, Florida State University, Aggelos Kiayias, University of Connecticut and University of Athens, Deepak Garg, Max Planck Institute for Software Systems.

Full report can be found at http://www.bic-trust.eu/files/2013/06/D4.7_BIC_WS_2013_V1.0.pdf



BUILDING International Cooperation for Trustworthy ICT



**BIC – DeitY India Extended Working Group (EWG)
Workshop on
Approaches to Build, Grow & Sustain EWGs for Effective Multi-lateral INCO
held on 11th October 2013 in New Delhi, India at the Department of Electronics
and Information Technology (DeitY), Govt. of India**



In cover photo (L-R): Mr. Aseem Mukhi, Consultant, Data Security Council of India; Mr. Sanjay Bahl, Senior Consultant CERT-In, DeitY; Dr. Klaus Alexander PENDL, First Secretary, Delegation of the European Union to India; Prof. MM Chaturvedi, Ansal University, Member BIC IAG; Dr. N Vijayaditya, Ex CCA & DG NIC, Gov't of India; Prof. M. P. Gupta, IIT Delhi; Dr. Charru (Charu Shiv) Malhotra, Associate Professor (e-Governance and ICT) at Indian Institute of Public Administration; Mr. James Clarke, Waterford Institute of Technology, BIC coordinator; Mr. Abhishek Sharma, Beyond Evolution Technologies, Member BIC IAG; Dr. OP Wali, Prof & Head (CITT); Indian Institute of Foreign Trade

Missing from photo: Dr. Gulshan Rai, Director General CERT-In, DeitY, Member BIC IAG.

Report authors: James Clarke, Abhishek Sharma, Manmohan Chaturvedi with contributions from all participants.

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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 22nd 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.

Full report can be found at

<http://www.bic-trust.eu/files/2013/10/BIC-Brazil-EWG-launch-WS-report.pdf>



BUILDING International Cooperation for Trustworthy ICT



BIC IAG Annual Forum Meeting 2013
held on 7th November, 2013
Vilnius, Lithuania



In cover photo (L-R): Volkmar LOTZ, Gavin McWILLIAMS, Amardeo SARMA, Michel RIGUIDEL, Henning ARENDT, Abhishek SHARMA, Lefteris LEONTARIDIS, Katrin FRANKE, Manmohan CHATURVEDI, Fabio MARTINELLI, Jacques BUS, Yolanda URSA, Isaac AGUDO, MP GUPTA, Algimantas VIZGIRDA, Carmen FERNANDEZ GAGO, Jim CLARKE, Barend TAUTE.

Report author(s): Jim Clarke, Abhishek Sharma, and contributions from all participants.

Full report can be found at

http://www.bic-trust.eu/files/2013/10/D4.8_BIC_IAG_Annual_Forum_2013_V1.0.pdf

Section A (public)

This section includes two templates

- Template A1: List of all scientific (peer reviewed) publications relating to the foreground of the project.
- Template A2: List of all dissemination activities (publications, conferences, workshops, web sites/applications, press releases, flyers, articles published in the popular press, videos, media briefings, presentations, exhibitions, thesis, interviews, films, TV clips, posters).

These tables are cumulative, which means that they should always show all publications and activities from the beginning until after the end of the project. Updates are possible at any time.

TEMPLATE A1: LIST OF SCIENTIFIC (PEER REVIEWED) PUBLICATIONS, STARTING WITH THE MOST IMPORTANT ONES										
NO.	Title	Main author	Title of the periodical or the series	Number, date or frequency	Publisher	Place of publication	Year of publication	Relevant pages	Permanent identifiers ¹⁷ (if available)	Is/Will open access ¹⁸ provided to this publication?
1	<i>Building a long term strategy for International cooperation in Trustworthy ICT</i>	Clarke, James	<i>Book ISSE 2011:Information Security Systems Europe (ISSE) 2011</i>	<i>Once off</i>	<i>Vieweg+ Teubner/ Springer</i>	<i>Germany</i>	<i>11/2011</i>	<i>pp. 98-108,</i>	<i>ISBN 978-3-8348-1911-6</i>	<i>Yes, by purchase</i>
2	<i>Coordination of Trust and Security Project Clustering,</i>	Clarke, James	<i>In book: Cyber Security and Privacy, Edition: Communications in Communications in Computer and Information Science, Vol. 182, Oct. 2013</i>	<i>Once off</i>	<i>Publisher: Springer-Verlag Berlin Heidelberg, Editors: Massimo Felici</i>	<i>Germany</i>	<i>10/2013</i>	<i>Chapter 12</i>	<i>ISBN: 978-3-642-41204-2</i>	<i>Yes, by purchase</i>
3	Trust & security RTD in the internet of things: opportunities for international cooperation.	Clarke, James	In Proceeding book of: SecurIT 2012: First International Conference on Security of Internet of Things, At Kerala, India, Aug. 2012.	<i>Once off</i>	ACM publishers	United States	08/2012	<i>Book must be purchased from ACM.</i>	Volume: ISBN: 978-1-4503-1822-8 DOI:10.1145/2490428.2490452	<i>Yes, by purchase</i>

¹⁷ A permanent identifier should be a persistent link to the published version full text if open access or abstract if article is pay per view) or to the final manuscript accepted for publication (link to article in repository).

¹⁸ Open Access is defined as free of charge access for anyone via Internet. Please answer "yes" if the open access to the publication is already established and also if the embargo period for open access is not yet over but you intend to establish open access afterwards.

4	Trust Management in Emerging countries: International cooperation research challenges for Horizon 2020	Clarke, James	Pre-Proceedings for the International workshop on Trustworthiness, Accountability and Forensics in the Cloud (T AFC 2013), June, 2013.	Once off	IFIP WG 11.11	Spain	06/2013	Full Pre-Proceedings with these two papers can be found at http://www.bic-trust.eu/files/2013/06/T AFC2013-Pre-Proceedings.pdf	DOI:ISSN: 2079-2247	Yes
5	Strategy for Coordination of the Cross Domain Activities & Multi-Lateral Approach in International Cooperation,	Sharma, Abhishek	Pre-Proceedings for the International workshop on Trustworthiness, Accountability and Forensics in the Cloud (T AFC 2013), June, 2013.	Once off	IFIP WG 11.11	Spain	06/2013	Full Pre-Proceedings with these two papers can be found at http://www.bic-trust.eu/files/2013/06/T AFC2013-Pre-Proceedings.pdf	DOI:ISSN: 2079-2247	Yes
6	Multi-stakeholderism: Avoiding the PRISM Paradigm.	Clarke, James	The ORF CYBER MONITOR 11/2013	Once off	Observer Research Foundation, Volume I (Issue 4):	India	11/2013	pp. 1-3,	Volume I (Issue 4):	Yes, can be downloaded from https://www.researchgate.net/publication/258848214_Cover_commentary_article_for_ORF_CYBER_MONITOR_NOVEMBER_2013?ev=prf_pub

TEMPLATE A2: LIST OF DISSEMINATION ACTIVITIES

NO.	Type of activities ¹⁹	Main leader	Title	Date/Period	Place	Type of audience ²⁰	Size of audience	Countries addressed
1	Workshop	WIT, TUD, ATOS, ENST	BIC planning session (in conjunction with the SysSec Workshop	July, 2011	Vrije Universiteit, Amsterdam	Research and gov't	70	All
2	Workshop, Conference	WIT, TUD	EU India Spirit (EUIS) Workshop and eWorld 2011	August, 2011	New Delhi, India	Research, industry and gov't	200	EU , India
3	Forum, Session	WIT, TUD, ENST	4th Euro-Africa Cooperation Forum on ICT Research BIC session held 15th November 2011) – BIC support the Head of Unit of Trust and security in organising a session on INCO with South Africa in Cyber Security.	Nov., 2011	Cape Town, South Africa	Research and gov't	200	EU, Africa
4	Workshop, meeting	WIT, TUD	Presentation at Federation of Indian Chamber of Commerce & Industry (FICCI) and meeting with DIT, India Gov't (now DeitY)	December, 2011	New Delhi, India	Research, industry, policy, gov't	75	EU, India
5	Forum of Cyber security and Privacy	WIT, ENST, ATOS	CSP Forum. http://www.cspforum.eu/ - BIC session on international cooperation.	April, 2012	Berlin, Germany	Research, gov't	100	All

¹⁹ A drop down list allows choosing the dissemination activity: publications, conferences, workshops, web, press releases, flyers, articles published in the popular press, videos, media briefings, presentations, exhibitions, thesis, interviews, films, TV clips, posters, Other.

²⁰ A drop down list allows choosing the type of public: Scientific Community (higher education, Research), Industry, Civil Society, Policy makers, Medias, Other ('multiple choices' is possible).

TEMPLATE A2: LIST OF DISSEMINATION ACTIVITIES

NO.	Type of activities ¹⁹	Main leader	Title	Date/Period	Place	Type of audience ²⁰	Size of audience	Countries addressed
6	Conference	WIT	Conference on Security of Internet of Things (SecurIT 2012) , in-cooperation with ACM/SIGSAC. http://www.securit.ws/ .	August, 2012	Kerala, India	Research, industry, gov't	150	EU, India and strong US presence
	Conference	WIT	The Open Web Application Security Project (OWASP)_InfoSec Conference 2012 - India's Cyber Security Kumbh https://www.owasp.org/index.php/OWASP_InfoSec_Conference_2012	August, 2012	New Delhi, India	Research, industry, gov't	300	EU, India and others
7	Conference/Forum	WIT, ENST,	Euro-Africa Cooperation Forums on ICT Research. http://euroafrica-ict.org/events/ . BIC organised a session on Trust and security cooperation	November, 2012	Lisbon, Portugal	Research, industry, gov't	100	EU, Africa
8	Meeting	TUD	Meeting with Indian Cabinet Ministers for Science & Technology , Advocacy for BIC-EWG - the combination of this discussion and Jim Clarke's interactions with Government of India DeitY led to the successful formation of the 1st BIC EWG in India.	March 2013	New Delhi, India	Gov't	5	India and EU
9	Workshop	TUD	EC EUINCOOP²¹ Workshop Presentation, "Challenges & Guidance for EC-International Cooperation in TSD".	April 2013	Bangalore, India	Research and Gov't	50	EU and India
10	Conference	WIT, ATOS, ENST	Cyber Security and Privacy (CSP Forum 2013) , Trust in the Digital World conference	April, 2013	Brussels,	Gov't and researchers	300	Mainly EU
11	Networking Cluster (track session)	WIT	Effectsplus²² and SecCORD²³ Clusters workshops. BIC coordinator WIT has been leading a cluster called Networking and Coordination Cluster of CSAs and NoE projects.	Various in 2012 and April 2013	Mainly Brussels	Researchers	70	Mainly EU from an int'l perspective

²¹ <http://www.euincoop.eu/>

²² <http://www.effectsplus.eu/clusters/>

TEMPLATE A2: LIST OF DISSEMINATION ACTIVITIES

NO.	Type of activities ¹⁹	Main leader	Title	Date/Period	Place	Type of audience ²⁰	Size of audience	Countries addressed
12	Lectures	TUD	Gave lectures on "Trust in the Cloud: A Socio-Technical Basis for International Cooperation" [Aug, India, Brazil]	August, 2013	IIT-Delhi, IIT Mumbai, IISc, Bangalore, India. INESC-Brazil	Research and Students	20	India and Brazil
13	Annual Forum	WIT, ENST	Participation to the Digital Enlightenment Forum (DEF) 2013²⁴. Participation to a number of breakout sessions. Advocacy of the strong need for international cooperation when building trust, security and privacy.	Sept. 2013	Brussels, Belgium	Research , Industry and Gov't	150	Mainly EU from an int'l perspective
14	Working Group meetings	WIT, TUD, ATOS, ENST	NIS Platform. Members of WG3: Secure ICT research and innovation.	Sept., 2013	Brussels, Belgium	Research and Gov't	100	Mainly EU from an int'l perspective
15	Workshop	TUD	QASA-2013: Talk/Panelist: "The Myriad Dimensions of Risk Assessment for IT Security"; Workshop 2nd International Workshop on Quantitative Aspects in Security Assurance (Advocacy of Trust Quantification as a priority research theme)	Sept. 2013	London	Research	50	Mainly EU from an int'l perspective
16	Conference	WIT	CyFy 2013²⁵ international conference on Cyber Security in India, which was co-organised by Observer Research Foundation (ORF) ²⁶	Oct. 2013	New Delhi, India	Research, Industry and	300	Eu, India, US, Russia and

²³ <http://www.seccord.eu/>

²⁴ <http://www.digitalenlightenment.org/>

²⁵ <http://orfonline.org/cms/export/orfonline/img/cyfyn/index.html>

²⁶ <http://www.orfonline.org/>

TEMPLATE A2: LIST OF DISSEMINATION ACTIVITIES

NO.	Type of activities ¹⁹	Main leader	Title	Date/Period	Place	Type of audience ²⁰	Size of audience	Countries addressed
			and the Federation of Indian Chambers of Commerce and Industry (FICCI) ²⁷ during 14-15th October, 2013. BIC role: lead rapporteur, paper (journal) presentation and panel session cover article (see above section 3.3 for more details).			Gov't		others.
17	Conference	TUD	ACM CCS 2013 : Talk - "Trustworthy Cloud Storage"	Nov. 2013	Berlin	Research	60	Mainly EU from an int'l perspective
18	Conference	WIT, ENST	OpenChina ICT final conference 2013 , held on 5th November, 2013 in Vilnius, Lithuania. The BIC project was invited to take part in a panel session entitled: "How to move forward?"	Nov. 2013	Vilnius, Lithuania	Research and Gov't	70	EU and China
19	Advisory Board	TUD	Trust in the Digital Life member of Advisory Board http://www.trustindigitallife.eu/about-tdl/governance/mirror-and-advisory-board.html	Various dates	Mainly audio calls	Research and industry	10-20	Mainly EU from an int'l perspective
20	Workshop	TUD	EC-CIRRUS-2013 ²⁸ : Talk – "Making SLA's Useful for Security; Advocacy of International collaboration for Cloud Security"	Nov. 2013	Vienna, Austria	Research and Gov't	75	Mainly EU from an int'l perspective
21	Working Group meetings	WIT, TUD, ATOS	NIS Platform. Members of WG3 ²⁹ : Secure ICT research and innovation.	December, 2013	Brussels, Belgium	Research and Gov't	100	Mainly EU from an int'l perspective
22	Workshop	WIT, ATOS	EC SECCORD/CYSPA Clustering workshop ³⁰ (held alongside the NIS Plenary and NIS WG3 meetings).	Dec. 2013	Brussels, Belgium	Research and Gov't	100	Mainly EU from int'l perspective
23	Conference	WIT	2nd Annual European Cyber Security Conference, 25th March 2014 , whose theme is securing the Internet economy.	Upcoming March 2014	Brussels	Research, Industry and Gov't	250	Mainly EU from an int'l perspective

²⁷ <http://www.ficci.com/>

²⁸ <http://www.cirrus-project.eu/>

²⁹ <http://ec.europa.eu/digital-agenda/en/news/second-meeting-network-and-information-security-nis-platform-plenary-0>

³⁰ <http://www.seccord.eu/2013/11/csp-forum-clustering-workshop-cybersecurity-in-fp7-security-trust-research-projects/>

Annex 1. Outcome Brief of the BIC project

To complement this Final Publishable Report, the BIC project has published a comprehensive ***outcome brief*** in the form of an executive summary describing the main outcomes of the project and what will take place now that the project has concluded. This outcome brief can be found as an annex here and at the project's web site at

<http://www.bic-trust.eu/files/2014/02/BIC-outcome-brief-Feb.2014.pdf>.



Purpose: Over the last number of years, the European Commission DG CONNECT Unit H.4, Trust and Security, has been advocating the need for and building of international cooperation (INCO) in the areas of Trustworthy ICT, including network and information security, cyber security, trust, and privacy. Following on from the INCO-Trust project [<http://www.inco-trust.eu/>], the BIC project [<http://www.bic-trust.eu/>] developed three core foundations driving EU-International cooperation with India, Brazil, and South Africa, namely (1) advocacy and alignment of EU RTD + policy priorities as a basis of mutually beneficial cooperation; (2) community building with researchers, industry, and programme management (i.e. funding bodies), and (3) establishing a long term strategic platform and mechanisms for sustaining multi-lateral INCO.

BIC – Objectives

- ✓ Charting the landscape of India, Brazil, and South Africa and their initial match to EU trust, security and privacy themes;
- ✓ Prioritisation of the EU suggested vision and research directions amongst the new countries (India, Brazil, and South Africa), including alignment of work programmes;
- ✓ Global alignment, consensus and outreach of the European visions of international cooperation and challenges across all targeted countries;
- ✓ Definition of Tangible International Activities including establishing success metrics and setting up projects.

BIC - Implementation

- ✓ Establish BIC Cooperation platform, including Int'l Advisory & Working Groups (for post BIC);
- ✓ Support the BIC platform with secretariat, organisational aspects, web portal and other supports;
- ✓ Collect, analyse and promote the work of the BIC cooperation platform;
- ✓ Carry out an alignment between countries and the EU, prioritising on the mutually beneficial research topics for EU - international cooperation;
- ✓ Disseminate activities in int'l communities through workshops, web portal, social media;
- ✓ Creating a programme structure setting up in-country bodies for international cooperation.

BIC - Impact

- ✓ Changing the mind-set from bi-lateral INCO activities to focus instead on multi-lateral INCO activities for Trustworthy ICT;
- ✓ The establishment and setting up of an EU-centric international cooperation platform, including an International Advisory Group, Core Working Groups, and Extended Working Groups³¹, all for the purpose of developing a longer term strategy for international cooperation for Trustworthy ICT that will continue after the lifetime of BIC;
- ✓ Raising the profile of international cooperation for Trustworthy ICT from an early 'nascent' stage to one of major importance as now expressed for Horizon 2020;
- ✓ Providing analysis on prioritised research topics and recommendations, including road mapping details for international cooperation in trustworthy ICT;
- ✓ Permanently raising the EU BIC brand name in the international communities and developing long lasting relationships with other projects and initiatives, including programme management.

³¹ An Extended Working Group (EWG) is composed of eminent members of the research, industry, and government community in each country working together on building future research programmes related INCO & Trustworthy ICT. Additional information on BIC's EWG at http://www.bic-trust.eu/files/2013/01/D2.5_BIC_WG_V1.0.pdf.

The six priority research topics identified as potential topics for EU and India, Brazil, and South Africa researchers for mutually beneficial cooperation in the area of trust and security are:

13. Research in Cyber security, including an international data sharing framework;
14. Trust and Privacy, taking into account the human – oriented and cultural aspects;
15. Mobile security, Social media and Cloud security;
16. Security of Applications and data protection;
17. Identity management, accountability frameworks;
18. Future Internet Security, across a variety of domains e.g. Internet of Things, Smart Cities,

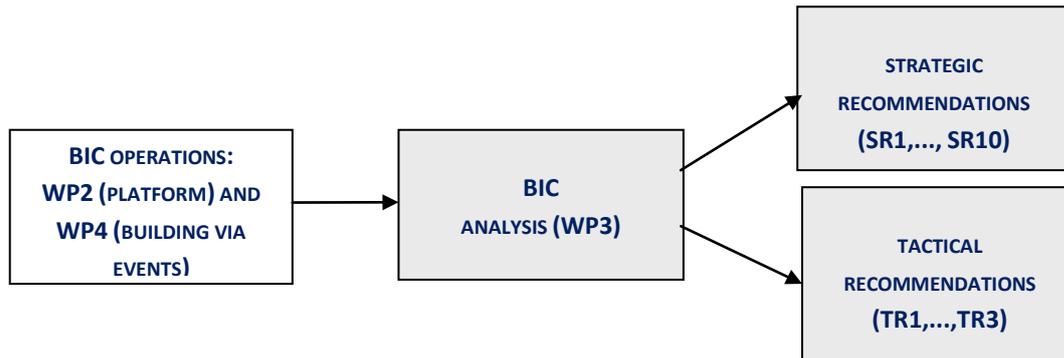


Figure 1 - BIC recommendations structure

The long-term **Strategic Recommendations**³² (H2020 and 2015-2025) for international cooperation in the field of Trustworthy ICT research and technological development are:

11. There is a need for new global approaches, meta-models and methodologies;
12. Global cyber security is a moving landscape of attacks, surveillance and failures;
13. International cooperation research is an essential H2020 requirement;
14. The international community must agree on grand principles;
15. There must be a shift in emphasis from the tactical bi-lateral collaborations to a strategic multi-lateral approach;
16. There is a need to keep an international open-ness in the specifications of services and standardisation;
17. There is a need for an international mobility model approach;
18. There is a need for an international approach dealing with the massive abstraction of software and data (e.g. resilience of virtualisation);
19. An international cooperation is needed to deal with the fragility of interconnections;
20. We need an international approach to steer the evolution and strengthening of the digital ecosystem in terms of network security governance and surveillance.

The shorter term **Tactical Recommendations** are:

7. The work of the BIC project, and its structural components (IAG, EWGs) should be continued, and expanded to other countries, in the long term;
8. The EU and BIC countries should formally recognise the Extended Working Groups as the nodal in-country agency/body to be called upon for discussions regarding future H2020 (and beyond) international cooperation activities;
9. The EWG should draw up and formalise their terms of references / objectives in synchronisation with one another and get these ratified by their respective Programme Management / Governments.

³² The definitions, rationale, steps required and suggested road mapping (timing) information for each of these recommendations are detailed in the BIC report entitled D3.2. Final recommendations report on future global research challenges in ICT trust and security, which is available at http://www.bic-trust.eu/files/2013/01/D32-Final-Recommendations_report_V2.0.pdf.



The original structure of the BIC international cooperation platform, as shown in Figure 2, was based on a traditional mixture of top-down and bottom-up approaches, using an International Advisory Group (IAG) being supported by three ‘Core’ Working Groups (CWGs). Two of the core working groups, ‘WG1: Human Oriented Trust and Security’ and ‘WG2: Network Information Security/Cyber Security’ were focussed on technical / societal areas while the third working group ‘WG3, Programme Management and Funding Focus’, focused on activities related to the processes and mechanisms involved in facilitating and supporting INCO for Trustworthy ICT.

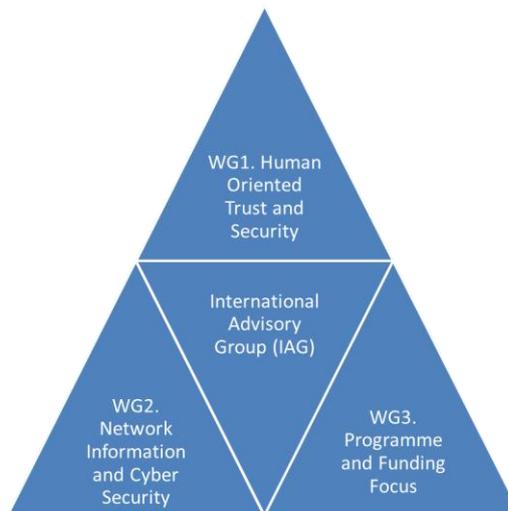


Figure 2. Original structure of BIC project and IAG/WGs

As the project progressed and evolved, moving into the phase where a longer term strategy was being brainstormed, it was suggested by members of the IAG (spearheaded by the India delegation and backed by the International Advisory Group) that BIC’s impact could be greatly enhanced if the foundations to sustain INCO were developed by BIC to last beyond the conclusion of the project. The suggestion was to develop a “Local Interests and Ownership” mechanism to develop a longer term sustainable model that would enable a larger grouping of key stakeholders (research, industry, government) to meet on a regular basis to promote their work in a stronger collective voice to their own funding agencies and feed into the wider BIC community objectives. Thus, the concept of setting up in-country EWGs (“Extended Working Groups”), as shown in Figure 2 below, was borne and consequently implemented in 2013.

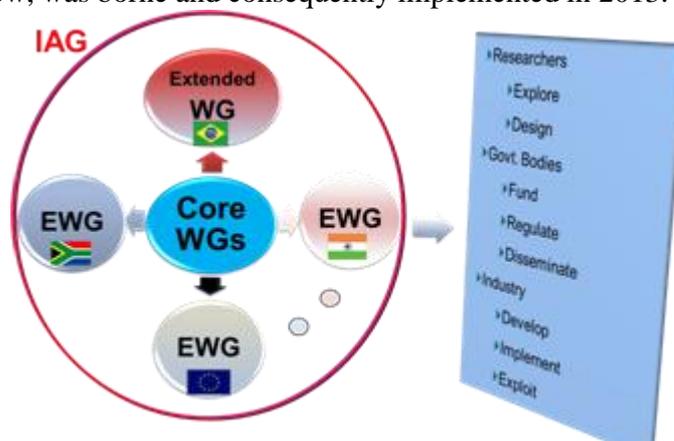


Figure 3. Revised structure of BIC project including IAG-CWGs-EWGs

Although not part of the original schema of the BIC platform structure, the newly formed EWGs (“Extended Working Groups”) 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. The EWG role, in essence is to:

- Identify, analyse and compile all the projects / initiatives being initiated by the in-country research institutes and industry of the country, classify the research projects and proposals for their domestic or international scope, necessity and suitability of such projects for INCO;
- Establish a Knowledge Bank as a source of information about all the research bodies, researchers, research work, industry participants, Government support, relevant processes, rules, etc.;
- Recommend such research proposals and projects for suitable inclusion / funding by respective bodies (EU, Govt. of Brazil, India, ...);
- Establish a cooperation platform with regular meetings with appropriate in-country Government bodies for necessary support such as approvals of plans and programme, mechanisms for funds’ allocations especially in light of the revised H2020 funding policy, and necessary authorizations as and when required;
- Establish a set up for involvement of the researchers and industry at the earliest possible stage. Towards this, work closely with Research and Industry forums within their countries such as EU NIS Platform, JWG on Cyber Security in India, Centres of Excellence in Cyber Security research, Observer Research Foundation - ORF (India), FICCI (India), NASSCOM (India), The Brazilian Association of Information Technology and Communication Companies (Brasscom), and similar forums in other countries;
- Identify suitable industry participants and create a conducive environment to motivate the industry elements for active participation;
- Work closely with the EWGs of other member countries to facilitate multi-lateral cooperation of various projects of the country duly identified;
- Identify the need and facilitate formation and setting up of Specialist Function Groups (SFGs) on project to project basis where SFGs are envisaged as specialists at functional level;
- Establish an ecosystem that will help generate a strong momentum for working together as a composite body of researchers and industry elements, to strongly promote the research topics that should be funded in future calls such as the EU’s Horizon 2020 (H2020) and/or other national or international programmes;
- Work together to determine the success metrics and Critical Success Factors (CSFs) that are to be considered essential before embarking on any project.

In conclusion, there is a requirement to focus on the ways and means to achieve IAG-EWG sustainability, by involving the right stakeholders from the research communities, industry, government funding and implementation agencies in all countries. The EWG is an important concept and the EWG bodies should not be allowed to disintegrate and stop functioning after the conclusion of the BIC project as these working groups can provide very valuable inputs to the upcoming Horizon 2020 programme, and potentially other research programmes as well.

A number of tactical short term recommendations have been elaborated regarding the steps needed to happen to facilitate the continuation of this important IAG-EWG concept in Deliverable D3.2 Final report on Future global challenges in ICT Trust and Security, available at http://www.bic-trust.eu/files/2013/01/D32-Final-Recommendations_report_V2.0.pdf.