



BUILDING International Cooperation
for Trustworthy ICT

D2.5 - Final Report of the Working Groups Activities

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Table of Contents

1.0 Executive Summary	4
2. The BIC Project.....	8
2.1. Overall Concept and Objectives.....	8
2.2. Project Structure	9
3. BIC Work strategy and Structural components	10
3.1 Work Strategy.....	10
3.2. Structural Components of the BIC Cooperation Platform	12
3.2.1 Background.....	12
3.2.2 International Advisory Group (IAG).....	13
3.2.3 Core Working Groups (CWGs).....	14
3.2.4. Extended Working Groups (EWGs).....	14
3.2.5. BIC Events	15
3.2.6. Role in Work Packages	16
4. Building of the BIC Structural Components.....	16
4.1. Background and the Process to Build the IAG	16
4.1.1 Terms of Reference of the IAG.....	16
4.1.2 Setting up of the IAG	17
4.1.3 Meeting Schedules of the IAG	17
4.1.4 The Future of the International Advisory Group	18
4.2. Background and the Process to Build the Core WGs.....	19
4.2.1 Terms of Reference of the Core Working Groups.....	22
4.2.2 Objectives of the Core Working Groups.....	24
4.2.3. Setting up of the Core WGs.....	25
4.2.4 Meeting Schedules of the CWG	26
4.2.5 The Future of the Core Working Groups.....	27
4.3. Background and the Process to Build the Extended WGs.....	28
4.3.1 Terms of Reference of the Extended Working Groups.....	29
4.3.2 Setting up of the Extended Working Groups.....	30
4.3.3 Meeting Schedules of the EWGs.....	30
4.3.4 The Future of the Extended Working Groups	32
5. BIC Cooperation Platform: What are the available supports?	33
5.1 Secretariat Function.....	33
5.2 WG Membership participation/costs involved.....	34
5.3 Communication & Exchange.....	34
6. Conclusions	36
References.....	38
Annex 1. Membership lists of the BIC project	39
A.1.1 International Advisory Group (IAG) members	39
A.1.2 Core Working Groups (CWG) Members	40
A1.2.1 WG1 Human oriented /citizen trust, privacy and security	40
A1.2.2 WG2 Network and Information Security/Cyber security	41
A1.2.3 WG3 Programme Management / Funding Focus	42
A.1.3 Extended Working Group (EWG) Members	43
A1.3.1 India EWG	43
A1.3.2 Brazil EWG	44
A1.3.3 Africa EWG	45
Annex 2. Digital Agenda Assembly Newsletter Results Article	46

List of Figures

Figure 1. Original structure of BIC project and IAG/WGs.....	5
Figure 2. Revised structure of BIC project including IAG-CWGs-EWGs.....	5
Figure 3. BIC Event categories and full listing	6
Figure 4. Overall Work package structure	10
Figure 5. Overall structure of BIC project structure and external bodies.....	11
Figure 6. Original structure of BIC project and IAG/WGs.....	12
Figure 7. Revised structure of BIC project including IAG-CWGs-EWGs.....	13
Figure 8. BIC Event categories and full listing.	15
Figure 9. Home screen of the BIC Web site.....	35
Figure 10. Home screen of the BIC WGs wiki site	35

1.0 Executive Summary

The long term strategic plan for BIC, and also a major success indicator for the project, is 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 deliverable D2.5 presents a comprehensive coverage of BIC's WG activities including the EWG developments.

Work Package 2 of BIC [*Platform for International Collaboration and Consensus Building*] focused on building the INCO 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. The INCO platform created in WP2, facilitated and supported a range of activities including the scoping and validating of analysis and findings, the recommendation of potential actions, being a credible interface between the broader research community and programme management as well as acting as 'BIC advocates' and organising local events to broaden the awareness of the project objectives within the target countries. As such, the work undertaken in WP2 has been crucial to the successful achievement of the project's goals and objectives.

This report summarises the building-process of the entire set of structured components of the BIC project, including the International Advisory Group, Core Working Groups (CWGs) and a newly formed concept of in-country Extended Working Groups (EWGs) that will continue and carry forward the work, after the conclusion of the BIC project. For each of these components, the report details the scoping and setting-up procedures, terms of reference (coverage areas), objectives, structure, scheduled meetings, membership and also describes future scenarios for each of the components. The report also details the methodology used for identifying the topic-areas needed for international cooperation in a broad vision of Trustworthy ICT and details the supports offered to the INCO platform by the project.

The original structure of the BIC cooperation platform, shown in Figure 1 overleaf, 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.

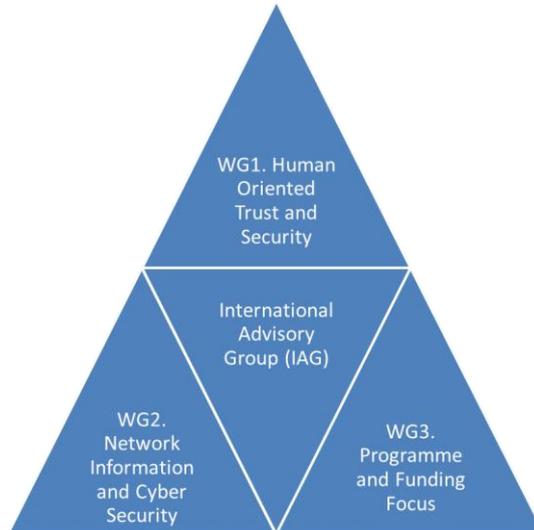


Figure 1. Original structure of BIC project and IAG/WGs

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 researchers 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.

Thus, the concept of setting up in-country EWGs (Extended Working Groups), Figure 2 below, was brought to the discussions during the BIC June 2012 workshop [1] and further developed and ratified at the BIC IAG Annual Forum in November, 2012 [2]. 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).

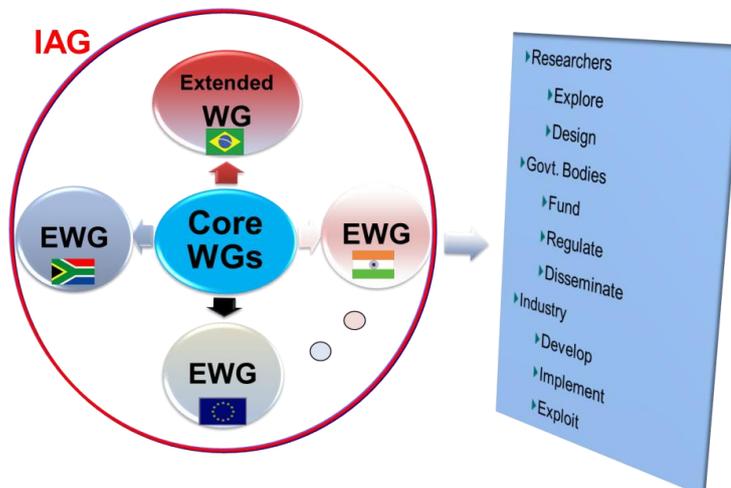


Figure 2. Revised structure of BIC project including IAG-CWGs-EWGs

Although organised as part of the activities in WP4, this report summarises the main outcomes of the project’s events, which included open forums, technical workshops and the more recently held workshops of the EWGs which were organised in the BIC countries. An overview of the events calendar is given in Figure 3 below. The report also provides links to the full reports of the events generated by WP4. Quite a large number of additional workshops were held over the duration of the project due to two principle reasons:

1. The project decided to decouple the main technical workshops from the annual forum, which resulted in two major BIC events per year – one in Q2 and one in Q4; and
2. Due to the setting up of the newly formulated in-country Extended Working Groups, which resulted in additional workshops being organised in all three of the BIC countries during 2013 (in fact, as a result of BIC spearheading the development of this concept, the India EWG held additional workshops in 2013).

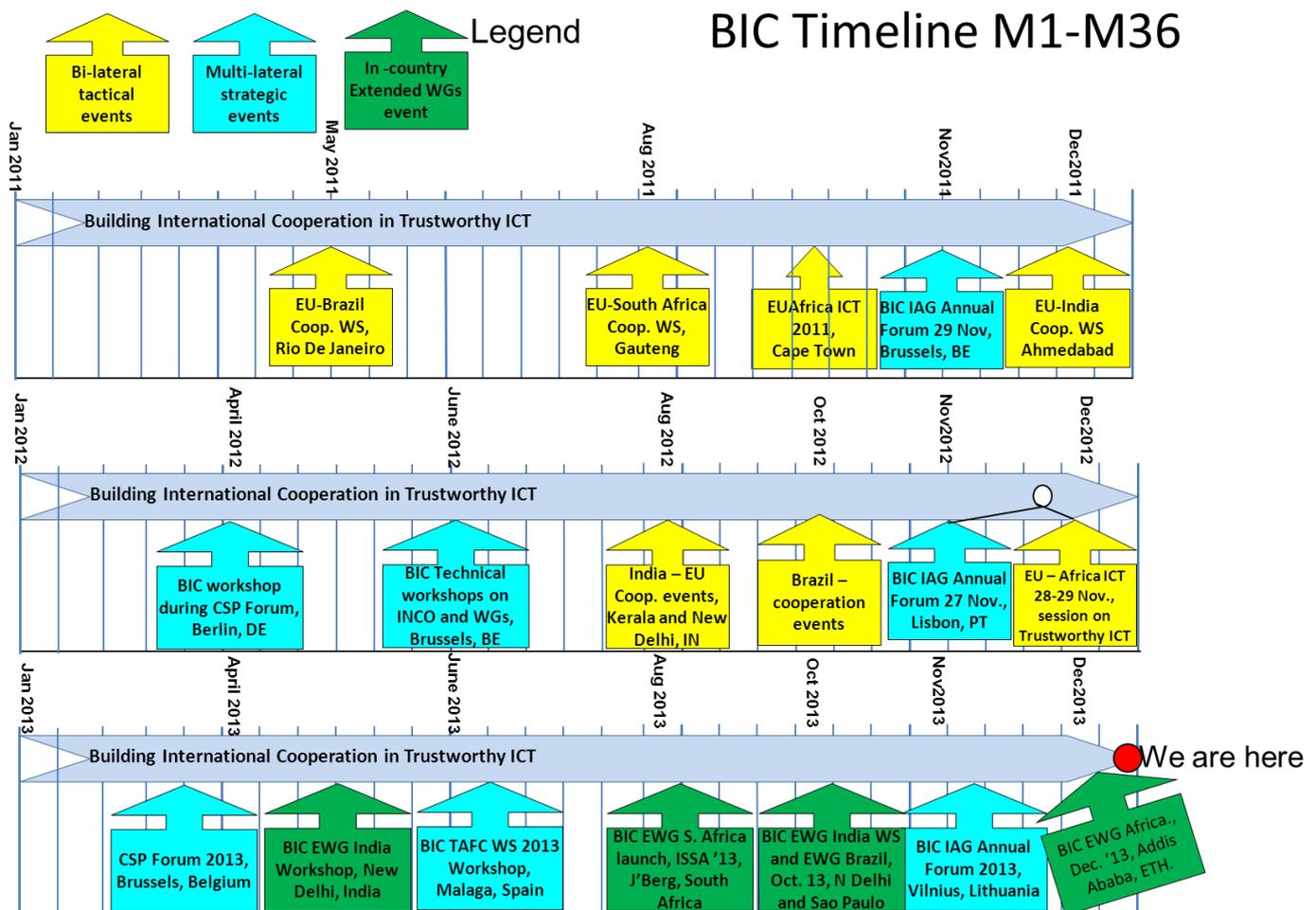


Figure 3. BIC Event categories and full listing

It has been the sustained intent of BIC to build into the spirit and methodology of the 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 led to the establishment of the in-country Extended Working Groups, which can pro-actively 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.

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, the project recommends 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 Platform¹ is suggested since the majority of the BIC WG members are now involved in this initiative, many in leading roles of WGs and clusters within the WGs.

¹ <http://ec.europa.eu/digital-agenda/en/news/nis-platform-kick-meeting-working-groups>

2. The BIC Project

2.1. Overall Concept 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 are:

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

This is precisely the role of the Working Groups (WGs) in BIC, whose aim with the assistance of key area representative members from all countries, is to aid in the development of a common base of understanding and planning for future collaborative activities. These cover both strategic and operational planning as presented earlier in BIC visitation and WG planning. The remainder of this document, especially Section 3, elaborates the process of development undertaken and the objectives, scope and composition of these WGs.

With the BIC Coordination Action, the successful models previously developed by the project partners will expand to the co-operation of EU researchers and programme management 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** in order to make these interactions tangible. These countries represent emergent world-impacting information economies through the scale and sophistication of their growing ICT sectors. Preliminary workshops (IST Africa 2006 - 2009 and EU-Brazil 2009) have been held between the EU and South Africa, EU and Brazil, and EU and India, where members of the ICT communities (including some members of the trust and security areas) and key high level European Commission officers have already come together to begin discussing collaborations. At this stage, BIC focuses on those countries where recent European interactions and S&T agreements already provide a substantial forum for engagement for the areas of ICT Trust and Security.

The BIC project will **facilitate** (including funding for networking activities and workshops) 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 will provide continuity and bring together a truly 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 both 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 will establish an organisational framework that will allow the participating countries to develop a common strategy and approach for R&D in Trustworthy ICT in line with European priorities. The basic trust and security technical areas pursued by BIC will be fully aligned and feed into the work being carried out within the European Commission driven research communities.

On this background, the objectives of the **BIC** project over its lifetime, are 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.

2.2. Project Structure

As depicted in the table below, there are four BIC Work Packages (WPs), with leaders from the four project partners.

Figure 4 overleaf illustrates the overall WP actions and associations across all the WP's:

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

3. BIC Work strategy and Structural components

3.1 Work Strategy

The building of international cooperation is a collaborative effort that only works if it reflects the views and priorities of the target countries as well as buy-in from technical experts of the EU along with the target countries. Hence, this component of community building is a key work strategy as shown in Figure 5 that BIC aims to develop based on a two-phased approach: **operational** and **strategic**.

The first phase is the **operational approach** where the networking activities including workshops and visitations are conducted. The project will facilitate the community to set up Working Groups (WGs), whose main goal is to develop a deeper understanding of important themes and topics that are identified as needing to be tackled on a global basis in order to strengthen the EU's international collaborations in the Trust, Security & Privacy areas. The areas and scope of the three working groups were agreed during the [First BIC Annual forum](#) [3] held in November 2011. These are introduced here, and further details are given in section 4, which details the terms of reference and objectives of the WGs. Needless to say, these areas were chosen to reflect the prioritised European trust areas as well as the other participating countries consensus. These are broad by design in order to meaningfully engage the varied spectrum of BIC target country's interests, whilst focussed to align with European Commission's topical work programme Call areas.

1. **WG1. Human oriented /citizen trust, privacy and security**, which will focus on topics related to a multi-disciplinary approach for international cooperation amongst all stakeholders;
2. **WG2. Network Information security/Cyber security**, which will focus on topics related to the need for international cooperation for enabling the protection of networks and systems;
3. **WG3. Programme /funding focus/identify community**, which will focus on the requirements, processes, mechanisms and barriers to enable collaboration opportunities.

The second phase is the **strategic approach** where contacts are made with the programme management and funding organisations and also the policy planners in order for BIC to have a long

term influence and impact on shaping EU–International trust and security planning. The project will facilitate an International Advisory Group (IAG), consisting of government and research members from the BIC countries and beyond, whose role will be:

- To help facilitate collaborations between the European Commission and the national cyber security constituencies and related trust and security related areas;
- To review the situation on International collaboration strategy in ICT trust and security on a regular basis with advising, review and recommendations feedback to BIC and the European Commission;
- Assist BIC to build relationships and linkages, and facilitate contacts for Working Groups, theme based workshops or other networking events.

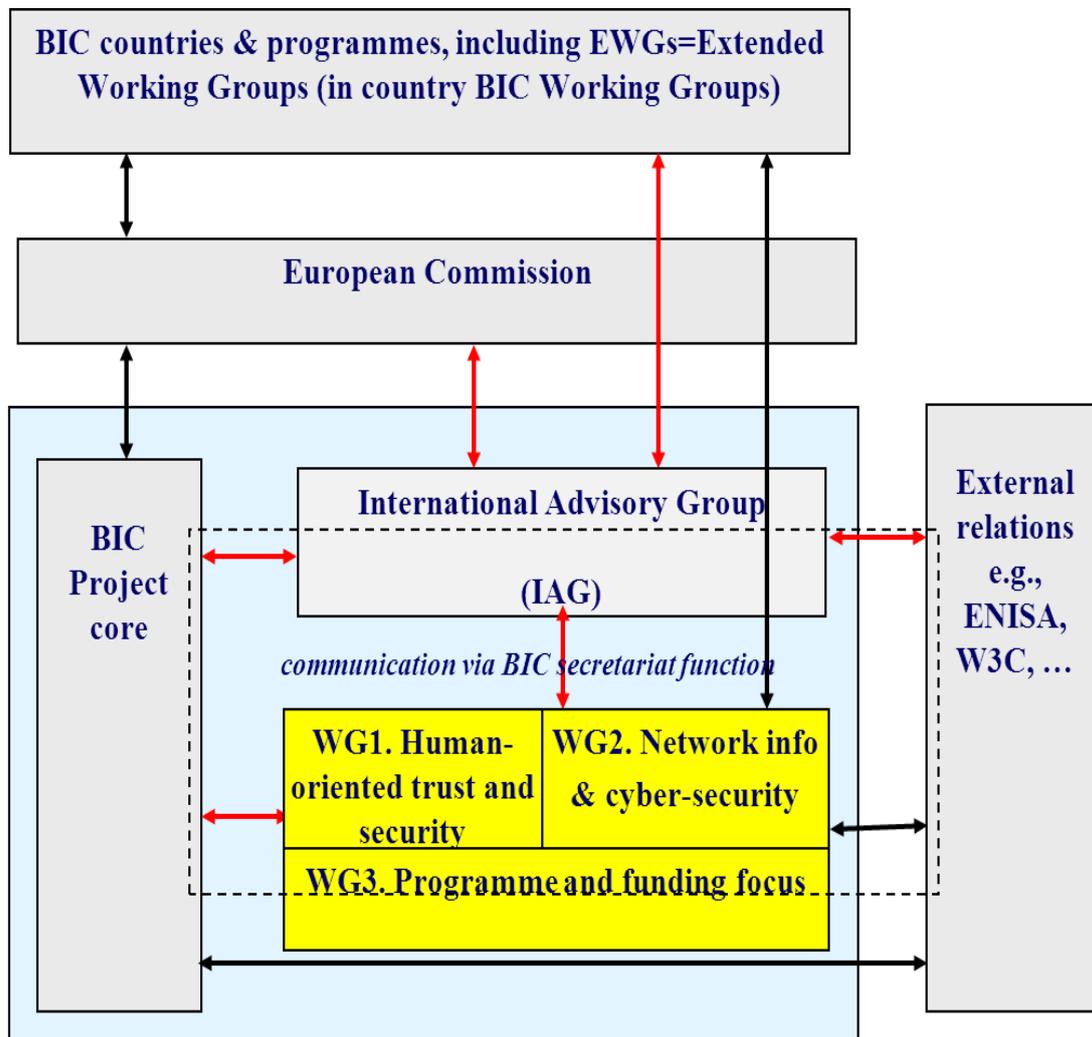


Figure 5. Overall structure of BIC project structure and external bodies

3.2. Structural Components of the BIC Cooperation Platform

3.2.1 Background

The original structure of the BIC project's constituency was based on a more traditional model based on a mixture of a top down and bottom up approaches; Through the utilisation of an IAG = International Advisory Group, being supported by three 'Core' Working Groups (CWGs) as shown in Figure 6.

Two of the working groups, WG1 and WG2, would be focussed on more technical areas and a third WG3 would focus their attentions on activities related to the processes and mechanisms involved in order to facilitate international cooperation in Trustworthy ICT.

As the project progressed, and moved into the phase where a longer term strategy was being brainstormed and developed, it was suggested by members of IAG, especially spearheaded by the India delegation, that this structure wasn't sufficient for the building of an effective, longer term INCO strategy. Specifically it was felt that it was not providing for enough interactions, especially internally within the BIC countries, in order to develop a longer term sustainable model that would enable a larger grouping of key researchers to come together 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.

Thus, the concept of setting up in-country EWGs= Extended Working Groups, as seen in Figure 7 below, was brought to the discussions during the BIC June 2012 workshop [1] and further developed and ratified at the BIC IAG Annual Forum in November, 2012 [2]. An EWG is defined as an in-country Working Group, which would have a continual charter and access to some level of support and a rationale to continue their work effectively after the BIC project concluded. The support would be via the local funding agency "in-country" for the short term until other mechanisms could be found (e.g. H2020) and the rationale for continuing would be to provide assistance to the funding agencies involved when building future research programmes that pertain to international cooperation and trustworthy ICT (although the concept could be extended to other domains).

Each of the BIC structural components will be explained in more detail in the next sections.

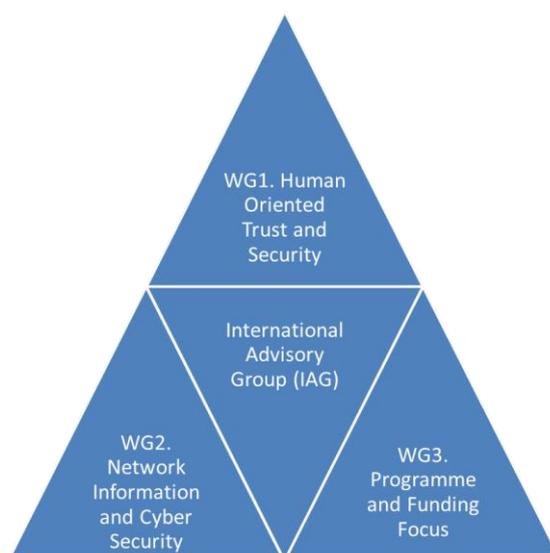


Figure 6. Original structure of BIC project and IAG/WGs

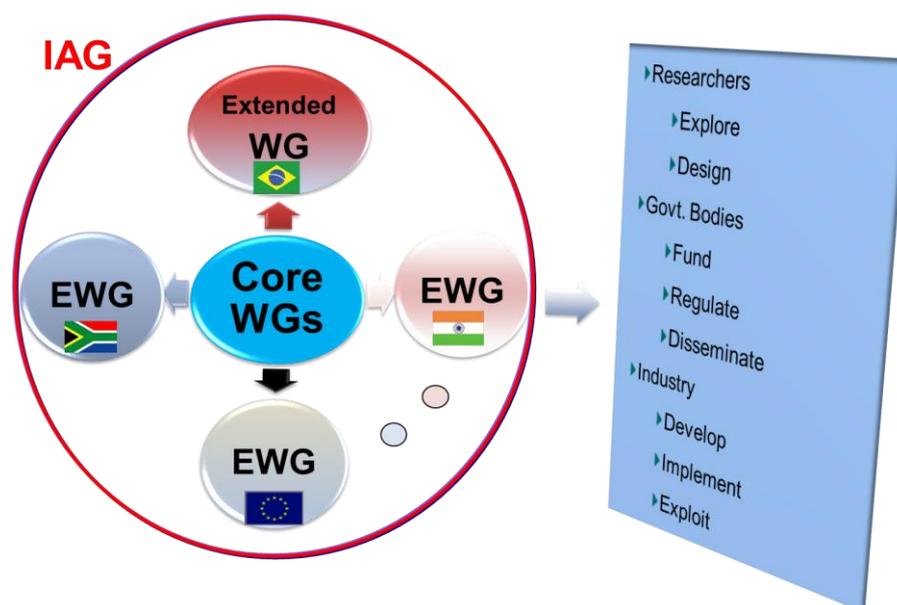


Figure 7. Revised structure of BIC project including IAG-CWGs-EWGs

3.2.2 International Advisory Group (IAG)

The IAG of the BIC project is a forum bringing together the countries representatives from the earlier INCO-Trust² countries (U.S., Canada, ...) and the BIC countries (India, Brazil and S. Africa) in a more strategic way, including the development of a longer term strategy for future cooperation in programmes such as Horizon 2020.

The IAG, which is comprised of government programme management, researcher community, and industry members already engaged in International cooperation also assist in the building of the working groups (WGs) to enable BIC to structure relationships and linkages and facilitate contacts for theme based workshops or other networking events.

In summary, the main objectives of the IAG are the following:

- **Identification of country wise Projects and Research Priorities:** Each country will have their own set of projects, directions and portfolios of research priorities, emphasis and growth areas of interest where international cooperation is an imperative e.g. trust and security;
- **Identification of tangible Project/Programme mechanisms:** To work out a clear and well defined mechanism to manage Projects and Programme with emphasis on fostering meaningful international cooperation (for short term and longer term impact);
- **Identification of Success Metrics:** Each country can elaborate on their own sets of meaningful success metrics for international projects, and defining a common set of success metrics amongst all the collaborating countries considering the international cooperation nature of the projects. In due course, this will evolve a globally acceptable uniform minimum common success metrics for internationally collaborative projects to be supplemented by country-specific success metrics on a project to project basis.
- **Provide their view on the “Long Term Strategic Perspective”:** As the BIC project is developing a longer term multi-lateral strategy, it is very important to obtain the views of all the countries on how they would see this working to the mutual benefit of all.

² INCO-Trust, <http://www.inco-trust.eu/>

This could also help identify exemplar countries that could potentially lead and develop an impetus for other countries to come on board to adopt this strategy.

- **Defining Modalities of Working Groups**: Provide views on the evolution of the modalities for oversight of the support working groups required in the project. This aspect has to factor the sanctioned life (36 months) of the BIC project till end 2013 and desirability of aligning with H2020 vision, while finalising recommendations for EC.
- **Identification of Work Items for WGs**: To highlight and provide input towards work items for WGs.

Additional information on the terms of reference and members of the BIC IAG can be found in sections 4.1 and Annex 1, respectively.

3.2.3 Core Working Groups (CWGs)

As shown highlighted in yellow in Figure 5, the Core Working Groups (CWGs) of BIC forms one of the central pillars of the operational structure of the BIC project in providing support to the International Advisory Group (IAG). The BIC Working Groups will contribute in bringing key domain expertise within thematic areas, scoping and validating analysis and findings, recommending potential actions and acting as a credible interface between the broader research community and programme management in order to succeed in the goals set out in the project. Each Working Group will be composed of external experts, in addition to 'ex officio' members from BIC, ensuring a balance of thematic expertise as well as country and organisational background (industry, research, academia and civil society) and co-ordinated by the BIC project consortium.

The main goal of the Working Groups is to bring their domain expertise and provide thought leadership in order to identify and validate future joint EU-International ICT trust and security research priorities. Methodologies, mechanisms, constraints and results would be presented and discussed with the aim of attaining an integrated approach to research in a select number of themes and domains. The Working Groups will produce actionable recommendations in research verticals and at the same time dealing with important horizontal topics including requirements and mechanisms associated with international cooperation, technology leadership, societal goals and impact, standards and interoperability.

Additional information on the terms of reference and members of the CWGs can be found in sections 4.2 and Annex 1, respectively.

3.2.4. Extended Working Groups (EWGs)

Although not part of the original schema of the BIC structural constituencies, 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 mobilizing towards multi-lateral research and innovation on the priority research areas in Trustworthy ICT, and will continue after the BIC project concludes in December, 2013. The EWG role, in essence, is to act as a pro-active working group in their respective country of origin as an on-going cooperation platform, whose main goals are:

- Providing a forum of interaction with all in-country research institutions and bodies creating a knowledge bank of all research work – past, present and future,
- Facilitating timely involvement of appropriate industry elements with corresponding research projects and,

- Holding of regular meetings with their appropriate 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.

Additional information on the terms of reference and members of the CWGs can be found in sections 4.3 and Annex 1, respectively.

3.2.5. BIC Events

During the whole duration of the BIC, the project has been engaged in the organisation of events relevant to three categories of activities: an open forum approach, bi-lateral (country by country), and in the final year, events related to the Extended Working Groups of BIC.

In addition, the BIC partners have been engaged actively with other like-minded projects, initiatives and activities in the trust and security communities, including Effects+, SecCord, GINI SA, CYSPA, CIRRUS, Euro-India Spirit, Synchroniser, EU Africa ICT, amongst others.

It is these interactions along with the combination of the bi-lateral and open forum events organised by BIC as shown in figure 8 that have been used to scope the areas of coverage of the Working groups for BIC.

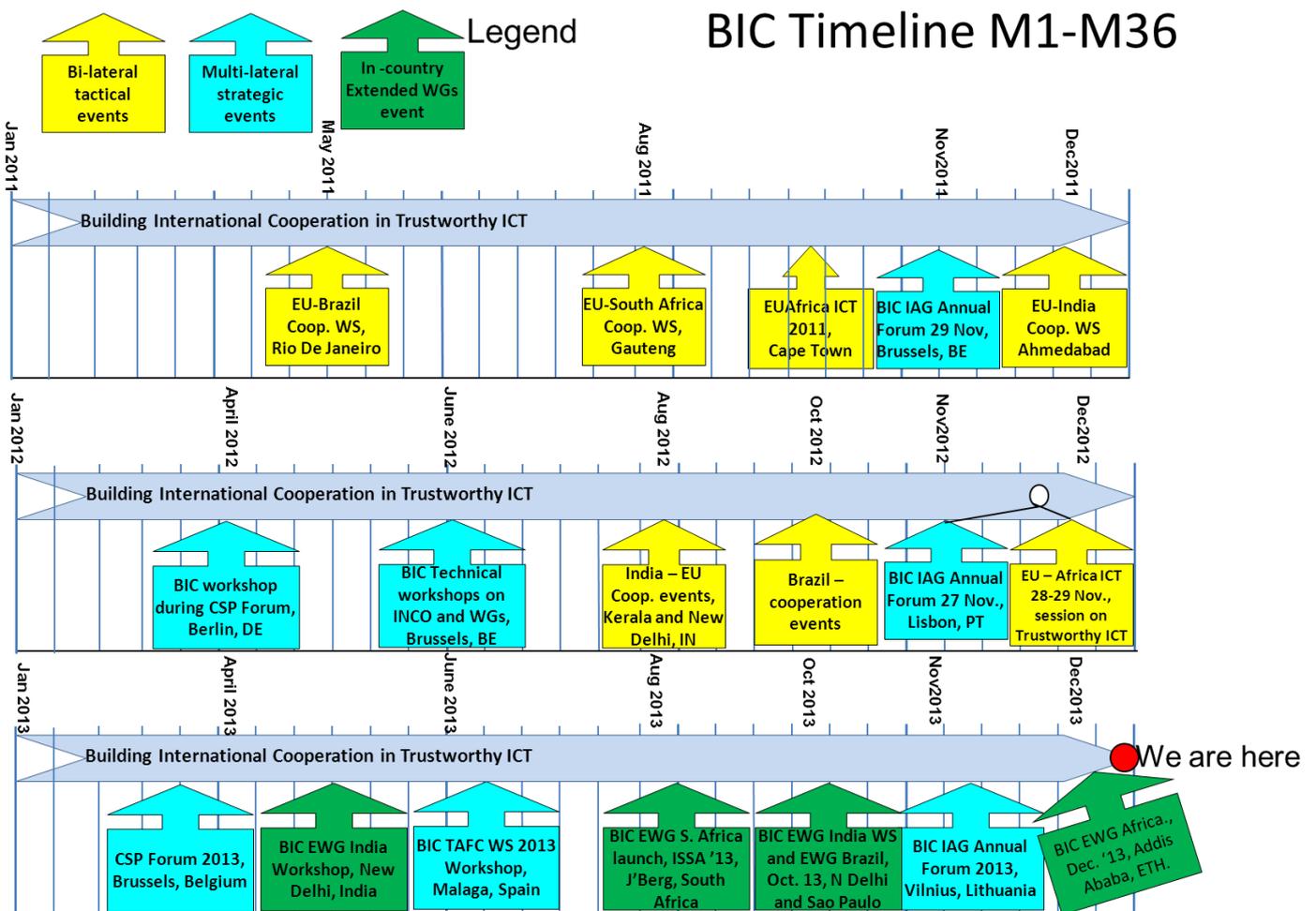


Figure 8. BIC Event categories and full listing.

3.2.6. Role in Work Packages

While the convening activities of the BIC Working groups (WGs) are planned, organised, and reported on by WP4, and the analysis work carried out by WP3, the main work activities of the IAG and WGs are an activity within Work package 2 (WP2: Platform for International Collaboration and consensus building). WP2 is under the leadership of Professor Neeraj Suri of TU Darmstadt in collaboration with all BIC partners. WP2 targets the establishment of consultation and analysis processes to facilitate productive and sustained collaboration/ partnerships with BIC target countries with the goal of coordinating and alignment with the European thematic areas of ICT trust and security. The focused WP2 objectives are:

- To facilitate collaboration and partnerships between researchers, with the goal of coordinating the multiple research efforts underway in the areas of ICT Trust and Security;
- To provide continuity with the existing relationships by establishing and maintaining an International Advisory Group (IAG) and Working Groups composed of Trust and Security experts from all countries.

4. Building of the BIC Structural Components

4.1. Background and the Process to Build the IAG

It was decided at the beginning of the project that the IAG membership would be kept quite small with the following representations for each country based on:

- One (1) member (or more if deemed necessary by the country) from the programme management (funding body(ies)) associated with the funding mechanisms of Research and Technological Developments (RTD) related to ICT Trust and security, or whichever related title (or closest funding agency).
- One (1) (see note a.) member of the RTD community, who has already engaged in international collaboration in ICT Trust and Security, and/or who can exhibit a genuine need and vision to participate in International collaboration activities. (**note a.** this number could be adjusted if the program management member suggests there should be additional RTD members required. Proper balancing should take place between research institutions, academic and industry representation, including a strong emphasis towards SME participation.)
- In addition, there will be “ex officio” members of the IAG e.g. BIC project members will take part in order to provide logistical and practical support including a secretariat function, together with a formal communication channel with the European Commission.

4.1.1 Terms of Reference of the IAG

The IAG will be the forum bringing together the countries representatives from the earlier INCO-Trust countries (U.S., Canada ...) and the BIC countries (India, Brazil and S. Africa) in a more strategic way, with the following objectives:

- To facilitate collaborations between national ICT Trust and Security constituencies and related ICT trust and security related constituencies from other countries;
- To review the situation on International collaboration strategy in ICT trust and security on a regular basis providing advice on the priorities for international cooperation between the respective research communities and corresponding industry elements, providing directions to the project and recommendations for improvement;
- Assist in the building of the working groups to enable BIC to structure relationships and linkages and facilitate contacts for theme based workshops or other networking events.

4.1.2 Setting up of the IAG

The identification and filling of the IAG memberships from the non-BIC countries (i.e. INCO-Trust countries U.S., Korea ...) went expediently, although there were challenges regarding frequent turnovers of positions in the majority of the countries. For example, in a number of the countries, there is usually a term limit of time that people remain in lead roles in the funding organisations and they tend to move back to their former positions in industry and/or academia. This resulted in a considerable amount of turnover in the ranks of the IAG members, especially in the non – BIC countries. It took a considerable amount of time to ask the newly recruited replacement members as a. they were not fully au fait with the goals and objectives of the project; and b. they usually had other pressing priorities in their new positions at the funding agency.

The identification and filling of the IAG memberships in the BIC countries took a considerable amount of time (in some cases nearly a full year) as the recruited members needed to learn more about the project's goals, objectives and mutual benefits for their participation before they could offer full commitment. In order to help this process, the project put together a proposal template specifically for the BIC IAG members that clearly described exactly what the project was doing, giving the benefits and clearly identifying what was required from the IAG members and this was a big help in securing the BIC countries' IAG members participation.

Another challenge the project faced was that a number of the countries had on-going joint calls at the same time e.g. Japan, Australia and Brazil (some of which were formed as a result of INCO-Trust and during the life of BIC) and some of these members felt uncomfortable participating to the IAG during this period in case this might be considered a conflict of interest. In these cases, we asked the IAG members to nominate someone else to act on their behalf until the time came that they could actively participate. This worked out quite well and in most cases, they nominated proactive members from the research community with a vested interest in Trust and Security and international cooperation.

4.1.3 Meeting Schedules of the IAG

The meetings for the IAG as originally envisaged in the description of work would take place at the same time as the technical workshop of the project. The first IAG annual forum in 2011 was held a few months later than expected due to the scheduling of the BIC Bi-lateral cooperation workshops scheduling. Following the first event, it was decided to decouple the BIC IAG forum from the technical workshops in order for the IAG events to be held in the 4th Quarter of each year. This resulted in the project being able to fully concentrate on their technical workshops during Q2 of each year and the IAG Annual forum in Q4 of each year. Therefore, the end result was on additional workshops being undertaken by the BIC project. The project made sure that significant lead time and notice was always given to the IAG and WGs to ensure strong participation. A full listing of these events can be found in Figure 8 above and the IAG related events and their outcomes are summarised here.

November 29th, 2011. BIC IAG Annual Forum meeting for 2011. The first annual forum of the project, whose main purpose was identification of the working groups structures to enlighten on the technological and policy challenges that really need and could be tackled in common between the countries so they can be elaborated clearly with the policy makers in the respective countries as a way forward.

Main project outcomes of this event: The event had a mix of panel sessions related to the findings of the project in the first year in terms of themes that needed further elaboration. The end result was the establishment of three core working groups for the project on the following themes: 1.

Human oriented /citizen trust, privacy and security; 2. network and information security / Cyber Security; and 3. Programme / funding focus / identify community. Full information on this event can be found at <http://www.bic-trust.eu/events/1st-bic-annual-forum/> (full report available at <http://www.bic-trust.eu/files/2012/01/BIC-Annual-Forum-report-V1-Long.pdf>).

November 27th, 2012. BIC IAG Annual Forum meeting for 2012. As agreed at the annual review held in February 2012, the BIC IAG Annual Forum was decoupled from the M18 technical workshop. In order to raise impact and participation, the BIC IAG Annual forum was held on 27th November 2012, co-located with 2012 Africa-EU Cooperation Forum on ICT, see <http://euroafrica-ict.org/2012-africa-eu-cooperation-forum-on-ict/>.

Main project outcomes of this event: The project was able to present accomplishments for the previous year and proved for planning in 2013, review of topics under consideration in the BIC Working groups, identification of 'hot' topics and future work items for WGs, and review country wise projects and research priorities. The full website of the event including report and slides can be found at <http://www.bic-trust.eu/events/bic-forum-2012/> (report available at <http://www.bic-trust.eu/files/2013/01/BIC-Annual-forum-2012-report-Final.pdf>). Note: the co-location of the events was very positive as it capitalised on the EU-Africa attendees, and the BIC attendees were also able to participate to the EU – Africa event.

November 7th, 2013. BIC IAG Annual Forum meeting for 2013. The BIC project's International Advisory Group (IAG) Annual Forum for 2013 was co-located with the prestigious ICT 2013 event held in Vilnius, Lithuania during 6-8th November, 2013.

Main project outcomes of this event: The final BIC IAG Annual Forum for 2013 focused on opportunities for International cooperation (INCO) 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 upcoming period. As the BIC project is concluding in December, 2013, this final annual forum took on an added significance towards making recommendations for the medium to long term strategy.

A full report of the BIC IAG Annual forum 2013 and slides presented can now be found at the web site of the event at <http://www.bic-trust.eu/events/bic-iag-annual-forum-2013-at-ict-2013/> (report available at <http://www.bic-trust.eu/files/2013/10/BIC-IAG-Annual-Forum-2013-report.pdf>).

4.1.4 The Future of the International Advisory Group

While the BIC project concludes in December, 2013, it is essential that the structures evolved under the project must continue to exist and function. This is because while the tenure of the BIC project may be limited in duration to three years, the core theme of International Cooperation for Trustworthy ICT is one of a permanent nature. It is, therefore, necessary to speculate the modalities to facilitate future functioning of IAG through regular interaction of its constituent members. Therefore, it is expected and desirable that the members of the IAG – the researchers, the industry and the government - continue to collaborate regularly within each country of BIC using now established country specific Extended Working Group (EWG), and they in turn find innovative ways to establish and continue collaboration with their peers in other countries as part of their stated terms of reference.

It would be essential to propose to the European Commission and other government agencies of respective member countries some possible options for continued functioning of the IAG, even if it needs to be in a scaled down version to a full project. Some options for this could be:

- Coordination or Support action under H2020;
- An ad-hoc and/or flexible funding mechanism be set up specifically for the running of an IAG event bi-annually/annually in coordination with the associated bodies such as EWGs that have evolved under BIC (note: there are already models for this kind of ad-hoc activity specifically for regular networking – a good example would be the United States’ National Science Foundation grants that have a fairly light weight mechanism for organising networking events, including travel and organisational costs);
- A “sharing the burden” model, whereby one country of the IAG takes the lead role on an 6 month or 12 month basis for the IAG coordination, including the costs involved (in a similar way that the EU Presidency is organised and run where EU Member States holds the responsibility for periods of six months);
- Transfer the IAG activities to another running initiative/agency, or combination thereof of a number of initiatives/agencies, that would have funding available for its continuance and already holds an annual conference e.g. NIS Platform, ENISA, Observer Research Foundation, amongst others...

In summary, for the fulfilment of a longer term strategy of having multi-lateral cooperation in trustworthy ICT across multiple countries, it is highly recommended that the IAG and associated in-country bodies like the EWGs (being described later in this chapter) should continue into the future and the countries should work together on making this happen as a matter of urgency.

4.2. Background and the Process to Build the Core WGs

The project decided to first concentrate on recruiting of the IAG members as described in section 4.1, who could then lead us to the members in the countries with the desired skill base and expertise to participate to the Core WGs of BIC. In parallel with this, the project was holding its bi-lateral workshops in each of the BIC countries and this was an ideal place and opportunity to recruit members for the Core WGs.

In order to populate the working groups, the BIC project first had to establish the topical areas for the working groups that reflected European priorities but also matched the interests/activities and priorities of the BIC target countries of Brazil, South Africa and India. The project partners decided to take an ‘open’ mind approach and to examine the relevant fields in order to make the right choice for the terms of reference (areas of coverage) of the Working Groups. The project used a number of methods for this scoping, including the running of bi-lateral workshops and visitations to the project regions and participation to other related EU or International project’s forums and activities and, in some cases, other related projects working groups (example: EU-India Spirit). It became clear early on that the constitution of the working groups for BIC would not be as straightforward or conventionally composed but they would be rather more fluid than the steady Working groups in other projects. This is because for BIC, the Working groups could evolve occasionally due to the specific competencies of the people invited/accepted to the specific Workshops, which are normally held based on a common agreed “terms of references” across a number of countries. Therefore, it is intended for the WG membership to be fluid due to a need for a continually growing and evolving range of co-operation topics and regional selection for attendance at project events. The project strongly endeavoured to keep the constituency as stable as possible in order to maintain a level of convergence on key priority themes of the participants whilst remaining somewhat flexible due to any re-orientation of topics and programmes in different countries beyond the control of the project.

In order to accomplish this, during the first year of the project, the project partners have built up a very large contact base of the research community participants within the BIC countries.

This has been accomplished through contacts made during the BIC events or their setting up and also from names received from other sources e.g. government funding organisations, industry contacts that have a good understanding of the research communities and research carried out on the activities within each of the countries. These contacts have been used as our main points of contacts in each of the countries and for invitations to participate to the Working Groups. As the project progressed, this contact list was increased and additional members were invited from all categories (industry and research).

As can be seen in Annex 1, the memberships of the Core WGs of BIC are comprised of key researchers and policy-makers from the BIC target countries in order to establish mutual awareness of the European research directions, priorities, and capabilities. BIC's approach is the mutual understanding forms the foundation of their understanding European thrust areas in Trustworthy ICT that require international cooperation and can help to engage and influence research planning of their country to be better aligned with the European key drivers.

The main start of building ideas for WG coverage began with the BIC planning session held in July 2012 in Amsterdam, Netherlands, co-organised by BIC with the SysSec Network of Excellence [4]. Taking into consideration the earlier work in the previous INCO-Trust project [5] and the results of the first bi-lateral workshop held in Brazil [6], and some early networking with researchers in India and South Africa, the organising committee of the BIC planning session selected the following topics for inclusion during the BIC planning session.

1. **Topic 1. Motivation and Vision:** What are we doing and why? What are the expected impacts? What kind of data should we share? What kind of collaborations do we need? What kind of analysis do we need? What are the incentives to participate? What are the risks?
2. **Topic 2. Threat Actors:** Who are the actors addressing the threats and what are their capabilities? What threat models follow from the actors' business models and capabilities? How are consequences of breach or disruption assessed and their criticality determined?
3. **Topic 3. Infrastructure and technologies to support international (or inter-nation) response to cyberspace threats and risks:** This would cover the sharing of intelligence on threats, putting together proposals for a strategy and policy framework, and the development of technologies to develop mutual protection and collaborative response. A number of questions were raised and need further research. For example, what are the enablers e.g. Cryptography based obfuscation, sensors on the network, monitoring traffic capabilities? Basics of how we share recognizable data, especially on critical infrastructures and across different countries. E.g. share patterns for recognizing advanced persistent threats without losing efficacy if they are exposed? What obfuscation and security measures would make patterns easier to share? Architecting for leakage and resilience under compromise. What are the limitations and criteria for sharing what data with which participants?
4. **Topic 4. Legal, Regulatory, political environment challenges:** What challenges arise when dealing across multiple sectors and countries? How are these best addressed at a transnational level? How are legal and regulatory issues including privacy, corporate responsibility best managed in order to improve coordinated defence?
5. **Topic 5. Next steps for planning:** What are the concrete next steps to motivate countries to contribute and support the effort?

Work on Topic 3 would include development of an *International Data Exchange Architecture for Cybersecurity* [7], which was proposed during an international workshop of INCO-trust held in May 2010 [8]. This was considered a good starting point since there was a good opportunity to continue the work already started by members of the international trust and security community.

The session organisers purposely used this topic as a key driver for the discussions during the planning session, it was clear that it provided a powerful example of where well-organised and motivated international collaboration could provide the leverage to address high-priority issues. In this case, rapid, collective response to attack or failure in cyberspace, through the sharing of intelligence and the design and development of shared defence strategies. As with all defences, penetration by an attacker would have drastic consequences, so the protection of the system itself and of its contents leads to further challenges.

A number of technical aspects were highlighted when going through the international data exchange straw-man architecture for coverage areas for developing the future programme topics of coverage for the first BIC Annual forum, which was being held in November 2011. These included:

1. **Research required on technical enablers:** The enablers for a secure international data exchange architecture e.g., Cryptography based obfuscation, sensors on the network, monitoring traffic capabilities, privacy protecting identity management, amongst others.
2. **Sharing Incentives:** Research is needed on incentivizing data sharing and collaboration across entities, sectors and countries. Basics of how we share recognizable data, especially on critical infrastructures and across different countries. eg. share patterns for recognizing advanced persistent threats without losing efficacy if they are exposed. What obfuscation and security measures would make patterns easier to share?
3. **Collection Prioritization:** Methodologies are needed for identifying and prioritizing data for collection in order to yield high leverage against cyber threats across different countries and time zones.
4. **Learning and Agility:** Data sharing and collaboration needs to evolve rapidly to keep pace with emerging threats.
5. **Resilient Sharing Architecture:** Research needs to produce a defensible architecture for sharing and collaboration.
6. **Trust:** Data sharing and collaboration will only be as good as the confidence participants have in the ability of the architecture to enforce access control and dissemination policies.
7. **Integration of technical and economic perspectives:** to optimize defensive interventions for the disruption of malicious business models.
8. **Integration of technical and legal requirements:** The need for international collaboration between the legal and technical communities, particularly with respect to exploring the extraterritorial agreements, including *Safe Harbor* agreements, pertaining to the reach of law, and inconsistencies in legal frameworks.

At the conclusion of the BIC planning session, a call was put out to the trust and security communities for further topics for the BIC annual forum and the agenda for the forum was put together based on these. When reviewing the topics for inclusion in the BIC Annual forum and reviewing the topics from the Amsterdam session, it was clear that these could be split into two overarching themes on network and information cyber security (covering 1-5 above) and human oriented approaches to security, privacy and trust (6-8 above).

As a result, sessions were organised and speakers invited covering the following themes at the BIC Annual forum in November 2011 [15].

1. Digital ecosystems network and information security and how international cooperation can provide mutual benefits.

This session had a panel composed of experts discussing the following topics:

- a. International data exchange architecture for cyber security;
- b. Open Source trustworthy host platform for collaborative research and education;
- c. Enabling technologies for secure exchange and sharing of cyber data e.g. cryptography;
- d. Cooperation on knowledge and data exchange and preparation of policy frameworks to enable global collaboration and interoperability;
- e. Protection, robustness, resilience of critical information infrastructures;
- f. Security of open source based systems including mobile communications;
- g. EU-US joint CIIP Exercise, Cyber Atlantic 2011;
- h. Future and emerging cyber threats and attacks and how international cooperation would assist in dealing with them.

2. Human oriented approaches to security, privacy and trust and how international cooperation can benefit.

This session had a panel composed of experts discussing the following topics:

- a. International privacy-friendly authentication and reputation assurance;
- b. Required infrastructures for trust and risk management;
- c. Decision making issues for trust, risk and privacy;
- d. Human oriented and usable security (the simple elements of data integrity and security that let people "trust" the devices to use digital services);
- e. Multi-disciplinary international cooperation amongst all stakeholders;
- f. Secure software-services development;
- g. International collaboration for trust and security based on context awareness and cultural aspects.

4.2.1 Terms of Reference of the Core Working Groups

As a result of these technical sessions and a number of sessions dealing with building a longer term strategy and approaches to international cooperation in other INCO projects, and subsequent discussions, three working groups were proposed during the wrap up session of the BIC Annual Forum in November 2011 [15]. The initial coverage areas of these working groups are included here.

4.2.1.1 WG1. Human oriented / citizen trust, privacy and security

This WG will focus on a multi-disciplinary approach towards international cooperation amongst all stakeholders. It will advocate that trust, privacy and security management should be more accessible to all kind of users and especially non-security experts evolving towards a more human oriented vision.

To address today's realities in trust, privacy and security, we need to:

1) move from the traditional technology-only oriented design of solutions towards user-centric security management and

2) bring together experts from psychology, social science, economics, legal, technologists and trust and security experts to address trust, privacy and security from the point of view of the users, and place them at the heart of solutions.

From an international point of view, we need:

- Collaboration between trust, privacy and security experts and experts from other *human* disciplines (psychology, social science, etc.) and from different countries, in addition to collaboration with international government institutions.
- Organisation of multidisciplinary and international workshops targeting wide public.
- Multidisciplinary and international working groups and eventually project consortia in targeted countries.
- Collaboration with international standardisation organisations.

Technological research can also benefit from international cooperation when it comes to considering the human factors in designing technologies. The following questions should be examined:

- How people perceive technological solutions and how that affects the adoptability of the corresponding technologies?
- How to best explain to people the potentials and features of the existing solutions?
- How to best design user-interfaces to encourage usability and adoptability?

The answers to these questions will vary for different cultures and by opening up research beyond the European borders. It would give us important insights into these aspects and eventually help us design better technology.

As a starting point, it was agreed that WG1 would focus on the following topics:

- Secure software-services development, including end to end trust assurance for users;
- Usability / user interface designs for trust, privacy and security;
- Addressing prediction, validation and enforcement mechanisms needs and requirements;
- Privacy concerns in an international setting: putting users in control of their data and information;
- Accountability, transparency, and responsibility within ICT environments, including cloud, mobile, etc.
- Taking into account cultural aspects;
- The establishment of “Path-finder”³ human oriented approach projects.

4.2.1.2 WG2. Network and Information security/Cyber security

Network and Information security/Cyber security are now receiving high priority for international collaboration. Some recent examples are highlighted here:

- EU–US INCO-Trust workshop of May 2010 [8],
- Munich Security Conference, 4-6th February, 2011 [9]
- US-UK Cyber Communiqué of 25th May 2011[10],
- Recent accession to the Budapest Convention on Cybercrime [11],
- 28th Annual International Workshop on Global Security on June 16, 2011 [12],
- Vienna Security conference, 1st July 2011 [13],
- London Cyber security Conference (1-2nd November 2011) [14],
- BIC Annual Forum (29th November 2011) [15],
- BIC WGs Workshop, June 2012 [16],
- BIC IAG Annual Forum, 27th November 2012 [17]

³ Involves the development and building of local expertise and a community of users through such “Path-finder projects”. The success of these is then used to promote further development of international collaborations to the broader community in potentially larger/more complex collaborative projects in trust, security and privacy scoped projects.

A key message throughout all of these events is the acknowledgement that international cooperation is nascent and a more global approach is urgently needed because there is ultimately just one, single, global information environment, consisting of the interdependent networks of information technology infrastructures, including the Internet, telecommunications networks, computer systems, and embedded processors and controllers. It is essential that we have the ability to conduct comprehensive intelligence collection and evaluation on any developing situation that threatens our cyberspace activity, followed by near-simultaneous processing, exploiting and disseminating of the information. This depends on multi-stakeholders engaged in collaboration, including data exchange and sharing (and also knowledge sharing) between countries. This WG will focus on the key elements within these important areas and inter-related technical areas.

As a starting point, it was agreed that the WG2 would focus on the following topics:

- International data exchange architecture for cyber security;
- Policies relating to how the collected cyber-intelligence is to be handled, exchanged, shared and utilised;
- Open source trustworthy host platform for collaborative research and education;
- International cooperation in Cryptology;
- Mobile security of software services;
- Cyber forensics and the requirements for International cooperation;
- The planning and improvement of joint exercises related to cyber security across borders.

4.2.1.3 WG3 Programme Management / Funding Focus

This WG will identify and explore the requirements, processes, mechanisms, enablers and barriers towards collaboration opportunities that would allow EU-International project consortia to pro-actively form including include various kinds of actors in the international setting: industry (large and small), academia, research institutes, user communities, governmental organizations, regulatory authorities, and others. The WG will identify a framework for enabling such collaborations more easily and provide the evidence to demonstrate and encourage the relevant communities of the possibilities for putting together joint cooperation together. The WG will also look at other mechanisms such as joint working and longer terms action groups, organization of public events with experts from countries and collaboration in standardization activities and other relevant initiatives.

As a starting point, it was agreed that WG3 would focus on the following:

- Identifying stakeholders (contacts in programme management and research communities);
- Identifying the requirements and barriers to international cooperation and potential long term solutions;
- Identification and involvement of ambassadors consisting of RTD experts engaged in both planning and research raising programme visibility amongst the countries.
- elements of worldwide excellence in trust, privacy and security;
- Identifying a long term framework for international cooperation in ICT trust, privacy and security.

4.2.2 Objectives of the Core Working Groups

The Core WG experts will contribute to EU and International Policy Analysis by identifying and analysing strategic objectives, technological evolution, societal imperatives and marketplace trends and integrating them into recommendations for EU-International collaborative research and development.

This will involve identification of the technological challenges that really need and could be tackled in common between the countries so they can be elaborated clearly with the policy makers in the respective countries as a way forward.

With this in mind, the objectives of the BIC Core Working groups are:

- Refine thematic focus within the domain covered by the Working Group by leveraging domain knowledge, familiarity with context and environment and research experience. Shortlist a set of actionable themes to be taken up in the EU-International joint research context.
- Propose a joint research agenda in a select number of promising high impact themes, and ways to carry it forward (institutional linkage, funding, formation of action groups, proposal / project consortia, ...);
- Identify and validate long term common research perspectives, aligned with the ICT trust and security research domains within the EU research vision and priorities (FP7 and H2020);
- Recommend ways to align policies impacting ICT research; propose joint research programmes, projects, instruments, funding and institutional mechanisms and links;
- Represent stakeholder views expressed toward the decision makers (the European Commission and the respective Governments for which they carry out research) in the formulation of enabling and relevant policies;
- Provide expert advice to BIC in thematic areas of competence and direct the project consortium to material, publications, activities, projects that might be of interest to BIC, its objectives and actions;
- Contribute to the WG reports and policy recommendations;
- Attend, contribute to, and offer expert advice and input at, the annual forum and other relevant events;
- Provide testimonials and inputs for the web portal of the BIC project and contribute towards articles & newsletters related to the project and its objectives and actions;
- Assist the BIC project to leverage its actions, achievements within the larger community of stakeholders and institutions. This would include being an advocate for the project and taking part in the organisation of local workshops to broaden the community of participants within their respective countries.

4.2.3. Setting up of the Core WGs

The Working Groups member were invited directly by the BIC partners based upon a mapping between the topics and objectives as outlined above and the recognition, talent and dedication of the individuals. It was also taken into consideration whether they had already shown a strong interest in international cooperation in ICT trust and security already.

The BIC project consortium has made every attempt to strike a balance between diverse profiles within the WG members. It is not expected that any member of the Working Group possesses expertise and experience across the entire spectrum of themes within a block. On the contrary, complimentary knowledge, expertise and experiences and even divergent and contrasting visions would enrich the overall effort and produce rich conclusions and credible recommendations.

Discussions within each Working Group are domain specific, but there is need to maintain focus on the overall context of International research in ICT trust and security as well as the cross-thematic implications along with the other Working Groups.

The Working Groups are expected to be self-organised in structure and in the method of their deliberations. However, in order to be consistent with their contractual obligations, the BIC project

consortium will put in place some ground rules in order to harmonise the functioning of the three groups, to have a standard reporting template and also to interface with the project and project officer in the European Commission when required. A project representative will be present throughout the deliberations of each Working Group in order to trigger the discussions on a clearly defined agenda, record the proceedings, steer the discussion to issues relevant to the objectives and keep time.

Roles and responsibilities of the Working Group members will be assigned in order to ensure a smooth and effective collaboration. The exchange among the participants will be facilitated through a versatile communication platform with a secure login area on the BIC platform with the use of a cooperation platform (e.g. <http://wiki.bic-trust.eu> and BIC web site at <http://www.bic-trust.eu/>) for sharing of documents. In addition to the above on-line collaboration tools, it is expected that the Working Groups held face-to-face meetings on the defined topics, which are described in a following section. The working groups meetings will generally be by invitation, and to minimise travels, will take place coincidentally with other highly relevant events being held. One example would be immediately before the annual forum events, providing input to and acting as a preparatory activity for them. However, if not feasible, these events will be held as stand-alone events.

The conclusions emanating from the deliberations must be collectively endorsed by the Working Groups, notwithstanding dissenting views. One member of each Working Group will present the conclusions at the joint concluding session, where all Working Groups and the project partners will be present.

The Working Group conclusions, if processed correctly and in a language for the relevant audiences, can have many positive implications, including:

- to enlighten the broader stakeholder community in the EU and the other participating countries on the state of the art and future orientations of ICT trust and security research and collaborative international research;
- to provide concrete recommendations on ICT trust and security topics that require international cooperation as a matter of urgency;
- to enrich the thematic content of the BIC project, in order to enable timely and useful submissions to decision and policymakers on the benefits of building international collaborative research and enabling policy framework and instruments.

Details of the final BIC CWG memberships can be seen in Annex 1. It should be noted that due to the dynamic nature of the BIC events, the WG membership would adjust accordingly to the topics being covered at the BIC events.

4.2.4 Meeting Schedules of the CWG

The meetings for the Core Working Groups took the form of workshops organised by the BIC project as described in section 4.1. The project made sure that significant lead time and notice was always given to the WGs to ensure strong participation. A full listing of these events can be found in Figure 8 above.

The Core WGs members were invited and set up following the identifying and scoping of the WGs at the BIC first annual forum in November 2011; therefore, here follows a summary of related WGs events in years 2 and 3 of the project and their main outcomes:

June 21-22nd, 2012, Brussels. The launch workshop of the BIC Working Groups of the project was a two day workshop entitled ***BIC Workshop on the cross domain coordination of International Cooperation (Day 1) and technical themes in Trustworthy ICT and INCO (Day 2)***.

Main project outcomes of this event: The primary focus on Day 1 of the workshop was drawing on expertise mainly from WG3 (Programme Management and Funding Focus) members of BIC on the requirements, mechanisms and processes involved in building a long term strategy towards international cooperation in the RTD programme in broader areas than just Trustworthy ICT. This included the participation of the European Commission's International relations unit and led to a number of interesting ideas and suggestions. The focus on Day 2 was dedicated to the two technical WGs of BIC, namely: WG1 (Human oriented /citizen trust, privacy and security) and WG2 (Network Information security / Cyber security). The event report and slides can be found at the web site at <http://www.bic-trust.eu/events/bic-workshop-on-the-cross-domain-coordination-of-international-cooperation-day-1-and-technical-themes-in-trustworthy-ict-and-inco-day-2/> (report available at http://www.bic-trust.eu/files/2012/04/BIC_D4.5_Report-of-Workshop.pdf).

June 6-7th, 2013: In order to maximise global outreach, BIC decided to organise their annual WGs (M30) workshop amongst a number of international collaborators including several EU FP7 projects with a like-minded interest to foster joint international project building activities in trustworthy ICT research. 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 (T AFC 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 T AFC 2013 workshop was held in Malaga, Spain on 6-7th June 2013, in conjunction with the 7th IFIP WG 11.11 International Conference on Trust Management⁴.

Main project outcomes of this event: The event web site can be found at <http://www.bic-trust.eu/events/tafc2013/>. The workshop led to two publications: 1. Report D4.7 Open workshop on scoping proposals for international projects (BIC International workshop on Trustworthiness, Accountability and Forensics in the Cloud - T AFC 2013, 6-7th June 2013), which can be found at can be found at <http://www.bic-trust.eu/files/2013/08/T AFC2013-Workshop-Report.pdf>. 2. Pre-Proceedings with refereed papers selection by the Programme Committee of the workshop. The pre-proceedings can be found at <http://www.bic-trust.eu/files/2013/06/T AFC2013-Pre-Proceedings.pdf>. In addition, the results of this event fed directly into the final version of D2.4 Report on prioritized Trust and Security themes [19], June 2013 and position papers used in the establishment of the EWGs in all the BIC countries (included as annex in Deliverable D3.2, Final report on Future global challenges in ICT Trust and Security).

4.2.5 The Future of the Core Working Groups

As the Core Working Groups were congregated to participate and contribute to the BIC Workshop events, as these events will not continue after the conclusion of the project in December, 2013, it is natural that the Core WGs will not continue as a formal body. However, a very positive development took place in the last six months of the BIC project with the establishment of the EU

⁴ <http://conf2013.ifiptm.org/>

Network Information Security Public Private Platform (NIS Platform), which held a kick off meeting for their Working groups during September, 2013 [20].

The establishment of the NIS Platform is a key action of the EU Cyber security Strategy and aligned with the implementation of the NIS Directive. 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 and their launch meetings were held on 25th, 26th and 27th September 2013, respectively:

- 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**.

Subsequently, the majority of the BIC Core WGs members, including all the BIC partners, are involved in NIS Platform WGs, especially within WG3, where it will be possible to advocate the building of international cooperation for trustworthy ICT within these working groups. We feel there could be excellent synergy between the EU's NIS Platform and other initiatives around the globe. A good example has been identified already with collaboration between the EU NIS Platform and the Indian Joint Working Group (JWG) on Cyber Security, which is also a PPP set up by the National Security Advisor of the India Government. While nothing has been formally developed between these initiatives, it has already been presented to the Government of India and the European Commission delegate of India during the BIC India EWG workshop and they both felt it is worth exploring such a cooperation going forward, especially since the JWG on Cyber Security of India already has a sub working group dedicated towards the advancement of international cooperation. A member of this JWG sub-working group on INCO attended the BIC India EWG workshop, where a number of ideas were highlighted including whether it would be possible to build a new BIC-like structure into these NIS Platform activities within H2020, potentially merging of the IAG and CWG as a single body clubbing their respective, role and scope and then supporting this merged entity under some mechanism of H2020, or other.

4.3. Background and the Process to Build the Extended WGs

In addition to the scoping of research topics using a more traditional bi-lateral approach, BIC is also working with the communities in a coordinating role in reflecting on a longer term strategy for international cooperation. Since international projects, particularly those addressing research on "Trustworthy ICT" require interactions amongst all participant countries to share the information, resources, etc., the approach for the formal interactions, flow of information and smoothness of actions, it is natural that the groups and sub groups working for the project work closely with each other. Accordingly at international management level, it requires a change in approach from the existing bi-lateral approach i.e. EU-India, EU- Brazil, EU- SA, -U.S, -Japan ... to a multi-lateral approach where each participating country develops a formal system for direct multi-lateral communication and interacts with each other besides interacting centrally as well.

In order to address this approach, during the BIC WGs workshop held in June 2012 at Brussels [16], the need for a structured management strategy, in order to effectively achieve INCO, was recognised and accepted. The proposed structure extended beyond the original BIC schema of IAG and Core Working Groups, and evolved to set up additional 'Extended' Work Groups in the hierarchy. This approach was subsequently presented before a European Commission representative in the subsequent IAG workshop at Lisbon, Portugal in Nov 2012 [17]. It was duly appreciated and ratified there.

4.3.1 Terms of Reference of the Extended Working Groups

As mentioned previously, Extended Working Groups (EWGs) of BIC are defined as the country specific arms of the Core Working Group (CWG).

The EWGs are envisaged to play a crucial role for the BIC objectives on developing a longer term INCO strategy on mobilising towards multi-lateral research and innovation on the priority research areas. The EWG role, in essence is to:

- Identify, analyse and compile all the projects 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 and suitability of such projects for international cooperation.
- 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, 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 Special 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. Some of these CSFs could include:
 - Inclusive & All Pervasive Approach.
 - Defined Scope of Work (SOW) & Role at each structure level.
 - Commensurate Management Structure.
 - Planned Execution.
 - Reviews & Course Corrections.
 - Objective Closure with Strategy for Future.

Additional details on success metrics can be found in the June 2012 workshop report at [16]. The second and an extremely important aspect that has emerged during the building of the EWGs is the role they could play in building a roadmap and the post BIC future strategy that would play the most crucial role for the success of any project. With the international cooperation being the core theme and necessity of such projects, a structured multi-lateral approach is essential.

4.3.2 Setting up of the Extended Working Groups

The approach taken to set up the BIC EWGs consisted of the BIC project compiling a position paper for each country outlining the EU – country priority topics for international cooperation and trustworthy ICT in each country and then working with ‘champions’ from the IAG and CWGs within each country, who were asked to discuss with the supporting government to convene a launch kick off / brainstorming workshop meeting for each EWG. These position papers can be found in Annex Deliverable D2.4, Report on prioritized Trust and Security themes for INCO [21]. Details of the EWG specific meetings can be found in the next section.

As a tangible expression of interest by the BIC countries, although it took many months to set up and run, the idea of long-term cooperation has garnered tremendous interest in all three of the BIC countries. It has already led to the launch of the BIC’s 1st EWG in India in May 2013 and a follow up workshop held during October 2013, both supported by India’s main government research agencies and the EU delegation in India as well as influential policy and research planners. This was subsequently followed by similar formation of EWG Brazil at the EU –Brazil BIC meet at Sao Paulo in Oct’ 2013 and EWG South Africa at the EU-Africa-ICT – P8 event in Addis Ababa in Dec’ 2013. The European Commission has also added its support by disseminating information on the BIC EWG’s on the ICT Trust and Security Unit H.4 part of the Digital Agenda newsletter in December 2013 [22].

4.3.3 Meeting Schedules of the EWGs

This section details of the BIC EWG workshop meetings and their main outcomes:

May 2013: BIC India EWG kick off workshop was held in New Delhi with the support of the India government and the European Commission delegate in New Delhi.

Main project outcomes of this event: With the impetus of this kick off workshop of the Extended Working Group concept in BIC, the EWG initiative was up and running with other BIC countries working on their own EWGs. An eminent member of the research community in India, Prof. MP Gupta, agreed to chair the BIC India EWG. Further details on this meeting can be found <http://www.bic-trust.eu/events/bic-india-extended-working-group-launch-workshop-new-delhi-india/> and the report can be found at <http://www.bic-trust.eu/files/2013/07/BIC-DeitY-EWG-report-final.pdf>.

August 14-16th, 2013: The BIC EWG South Africa concept was launched by Professor Marijke Coetzee of the University of Johannesburg at the Information Security South Africa conference (ISSA 2013), held in Johannesburg, during which eight senior researchers have joined the EWG.

Main project outcomes of this event: Launch event for the BIC South Africa EWG in which eight members were recruited to participate. An eminent member of the research community, Dr. Barend Taute of CSIR Meraka, along with the assistance of Professor Marijke Coetzee, has agreed to take on the role of steering the EWG of South Africa. The first plans of Dr. Taute was recruitment of members including organising a dedicated session to be held at EUAfrica-ICT P8 Forum in December 2013 in Addis-Ababa, Ethiopia. More information on the ISSA 2013 event, including the BIC session, can be found at <http://www.infosecsa.co.za/>. The BIC session was held in the afternoon of Day 1, 14th August, 2013.

October 11th, 2013: BIC India EWG workshop, New Delhi, supported by India's main government research agencies and the EU delegation in India as well as influential policy and research planners.

Main project outcomes of this event: This event mainly focussed on the next steps forward for the BIC India EWG and planning for the continuation of their activities after the conclusion of BIC. For details on this BIC India EWG follow up workshop held in October 2013, please see: <http://www.bic-trust.eu/2013/05/22/bic-india-ewg-launch/> and <http://www.bic-trust.eu/2013/11/22/bic-india-ewg-october-2013-report/>.

October 22nd, 2013: BIC Brazil EWG launch workshop, São Paulo, Brazil. This event was attended by many trustworthy ICT researchers from all over the country and government representatives.

Main project outcomes of this event: Launch event for the BIC Brazil EWG. An eminent member of the research community, Professor Ricardo Dahab of the University of Campinas (UNICAMP), has agreed to take on the role of steering the EWG of Brazil and his first plans are to increase membership with eminent researchers from all over Brazil using the BIC priority topics as the starting point. A number of potential key research themes in Trustworthy ICT earmarked for international cooperation between Brazil – EU cooperation were discussed, agreed and ratified during the BIC Brazil EWG meeting. The research themes, falling under the main categories of: Research involving Cyber Security, Future Internet (FI) Data and Information Provenance (source/birth of data), Future Internet (FI) Data and Information privacy, Digital Identity Management, and Trust Management for emerging countries were arrived at from an earlier analysis carried out within the Working Groups of BIC. For details of this event, please see <http://www.bic-trust.eu/events/bic-brazil-ewg-launch-meeting/> and the report can be found at <http://www.bic-trust.eu/files/2013/10/BIC-Brazil-EWG-launch-WS-report.pdf>.

December 2-4th, 2013: BIC EU – Africa Cyber security session / expansion drive for the BIC Africa EWG. EWG.

Main project outcomes of this event: As agreed at the BIC IAG Annual Forum in 2012 and reinforced at the Annual Forum in 2013, the membership of the EWG of South Africa is to be expanded to include cyber security and trustworthy ICT researchers and government members from across all Africa. The BIC coordinator, James Clarke, Waterford Institute of Technology, along with BIC International Advisory Group member and EWG co-lead Dr. Barend Taute, Manager of Contract R&D at CSIR Meraka Institute & EuroAfrica - ICT/P8 Technical Coordinator for Africa South Africa, and Dirk Elias, Executive Director, Fraunhofer Research, Portugal were involved in co-organising session no. 2D entitled Cyber Security & Trustworthy ICT within the mentioned forum. This was a very popular session held during Day 2, on 3rd December, 2013 at the EUAfrica-ICT P8 Forum at the African Union Headquarters in Addis-Ababa, Ethiopia. For details, please see <http://www.bic-trust.eu/2013/12/02/bic-south-africa-ewg-dec2013/>.

These EWG launch events were publicised in the European Commission's Digital Agenda for Europe December 2013 newsletter found at <http://ec.europa.eu/digital-agenda/en/news/bic-intl-cooperation-project-launch-2nd-high-profile-advocacy-group-brazil>. For convenience, this article is found in Annex 2.

4.3.4 The Future of the Extended Working Groups

As explained earlier, the EWGs have been established to play one of the most crucial roles in building the in-country research collective body and effectively promoting the multi-lateral international cooperation. Hence, there is a strong need to continue and grow the EWG and the bodies set up under this concept in the participating countries viz. India, Brazil, South Africa (and wider Africa participation), and growing to other interested countries after the conclusion of BIC in December, 2013.

There is a need to focus on the ways and means to achieve their sustainability, by involving the right stakeholders from the research communities, funding and implementation bodies (Government & Industry) 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.

The partners of the BIC project will, of course, assist in each and every way possible to ensure their sustainability and look for other means and mechanisms to continue this important activity. For example, the BIC Web site, LinkedIn Group, and Wiki site will continue to be maintained for at least five more years to come and a number of the BIC partners have committed to continue in a personal capacity for as long as possible.

It has also been suggested that the EWGs could pursue other support measures and mechanisms, including:

1. Establishing a formal government sponsored Centre of Excellence, which could facilitate sustainability, resources, and the infra-structural components required to continue.
2. Formal acceptance of EWGs as the nodal in-country agency to promote and implement the BIC objectives of “International Cooperation for Trustworthy ICT”.
3. Formal identification of three key stakeholders under the EWG forum vis. Research Institute, Industry and Govt. The Govt. may identify a specific Ministry / Govt. Dept and notify the specified agency with their role for the purpose.
4. The objective, role and scope of EWG be formalized in accordance with the details as stipulated in the earlier report pertaining to EWG formation and subsequent reviews, which has been agreed and ratified by the participating governments.
5. Rules of governance and corresponding procedures be evolved and formalized. An empowered EWG Steering Committee may be formed with one or two representatives each from: Research fraternity, Industry members and Government with a steering Head. These rules and procedures should be formed with a view to address the smooth functioning of the EWGs in accordance with the entire range of objective, role and scope of EWGs as duly defined. However, we still feel a BIC-IAG- like overall coordination structure would still be necessary as a driving force.

A number of tactical short term recommendations have been elaborated regarding the steps to happen to facilitate the continuation of this important EWG concept in Deliverable D3.2 Final report on Future global challenges in ICT Trust and Security.

5. BIC Cooperation Platform: What are the available supports?

The BIC project, through its cooperation platform for INCO (Work Package 2) provides logistical and practical support including a secretariat function, together with a formal communication channel with the European Commission. Because the official, legal relationship is between the European Commission and the project, the project must provide the channel for necessary formal, procedural communications between the Working Groups, the International Advisory Group (IAG) and the European Commission. However, not being a formal institutional body, these bodies will be free to decide where and how to bring its findings and recommendations to the attention of chosen targets, whether within the Commission, other European entities, national governments, etc. The BIC project, together with its Commission project officer, will provide necessary support in establishing appropriate contacts and channels.⁵

The following sections provide more details on the level of supports on offer by the BIC project.

5.1 Secretariat Function

The Secretariat function provided by the BIC project goes beyond just writing the full reports of the events. Each WG event will be supported by a Working Group Manager and Rapporteur provided by the BIC project. The project will also provide support in setting up / organising each of the BIC events and steering the WG members to take on a leading role during the events as ‘Chair’ and/or ‘Moderators’ dependent on the session type. The WG chairs/moderators will participate with the BIC organisers in working out the session structures for each of the WG events, helping with the setting of agenda.

The WG Manager will be supporting the Chairs in preparing and running the meetings and will be acting as a vice-chair for the meetings. The WG manager will be assuring the smooth operation of the Working Group, providing the necessary collaboration tools in order to make the collaboration among the members of the WG more efficient and effective, and acting as the interface between the WG and the project with respect to organizational/financial aspects concerning the WG. The WG managers from the BIC project are identified in the membership lists in section Annex 1, A1.2.

The WG meetings will commence with a plenary session with all Working Group members and members of the project consortium. The consortium might decide to have special invitee (s) at this session, and/or have a special call for papers/presentations. The individual Working Groups will then move to parallel sessions in order to take up group specific themes and topics.

Finally, the Groups will converge at the end of the day or in the forenoon of the following day for a wrap up plenary, where the summary of the deliberations of each group will be presented by the Chairs / Rapporteur and a combined summary/set of recommendations will be discussed.

The WG Rapporteur will support the WG manager in preparing and running the meetings and, in particular, be responsible for preparing the minutes of the WG meetings, as well as drafting the versions of the WG outputs. The project has been very successful in enlisting the help of WG members in carrying out the role of Rapporteur during the events and this has been very useful when generating the high quality reports from the events.

⁵ The support of the Commission for involvements & engagement with pertinent international contacts, advising other Commission organised events and activities will greatly facilitate development of international cooperation communications and visibility.

In summary, in order to ensure a smooth and effective collaboration during the workshop, the BIC partners will coordinate, manage and moderate the three working groups, however, with the help of nominated participants external to the project. This is a format that has been tried and utilised effectively by the BIC partners in the past and it works very well in raising the participants interest levels in the workshop sessions and their aftermath (e.g. writing of the workshop session(s) reports and final reports).

5.2 WG Membership participation/costs involved

Membership of the BIC WGs is on a personal basis. As a general rule, most of the involved funding bodies from each individual country already have programmes in place looking at international cooperation, and in the past, they have covered the travel costs of their constituents related to this type of networking with their counterparts in the EU. In addition, the meetings will be co-located with other relevant events which the WG members could attend to gain added benefit. The BIC project has allocated budget to cover administrative costs related to the venue, facility management and other organisational aspects and, in general, would not be in a position to cover the travel costs of the participants. However, BIC will assist the members in locating potential funding mechanisms within in their home countries and will work closely with the members until some suitable solution is reached.

In terms of effort and time required, in addition to mainly electronic working, audio conference style meetings will be held regularly when needed, it is envisaged there will be at least one physical meeting (2 days minimum) at the same time as the BIC annual forum, or if deemed necessary, at a different time and place. It will also be strongly encouraged that the non-EU BIC working group members, where feasible, would extend the working group memberships within their home countries and hold workshops/meetings, with the assistance of BIC where as and when needed, specifically for information and consensus gathering, and raising awareness of the BIC project and its goals.

5.3 Communication & Exchange

The Working groups use dedicated mailing lists for their exchanges. E.g. BIC_WG1@listserv.tssg.org, and a global mailer BIC-TRUST-WG@listserv.tssg.org that reaches all WG members. There are also dedicated mailers for the BIC EWGs including: BIC_WG_SA@listserv.tssg.org, BIC_WG_INDIA@listserv.tssg.org, and BIC_WG_BRAZIL@listserv.tssg.org. With the dedicated mailer(s), the WG members can send to the list from the subscribed email address(es). There is a central management system that working group members can use to manage their email accounts and for communicating with the other members. These are located on the WIT-TSSG server, e.g. http://listserv.tssg.org/mailman/listinfo/bic_wg1, where membership account information and mail archives are accessible. Within the WG method of working, we will try to endeavour to keep administrative emails to a minimum. Therefore, within the Work Groups, mail from the project will come from the WG managers appointed from the project.

In addition to audio conference calls and face-to-face meetings as described above, exchanges among the BIC Working Group members will be facilitated by the project's web portal, which has a link to a UN/PWD protected dedicated wiki area (<http://wiki.bic-trust.eu/>) specifically designed for the BIC working groups activities, with both private and public areas. The BIC web portal available at <http://www.bic-trust.eu/> is a multi-faceted communication channel mechanism that includes project information, latest news, links to relevant blogs and social media, document sharing, mailing lists, etc.). A screenshot of the home page can be seen below in figure 9. A screen shot of the BIC wiki can be seen in Figure 10.



Figure 9. Home screen of the BIC Web site

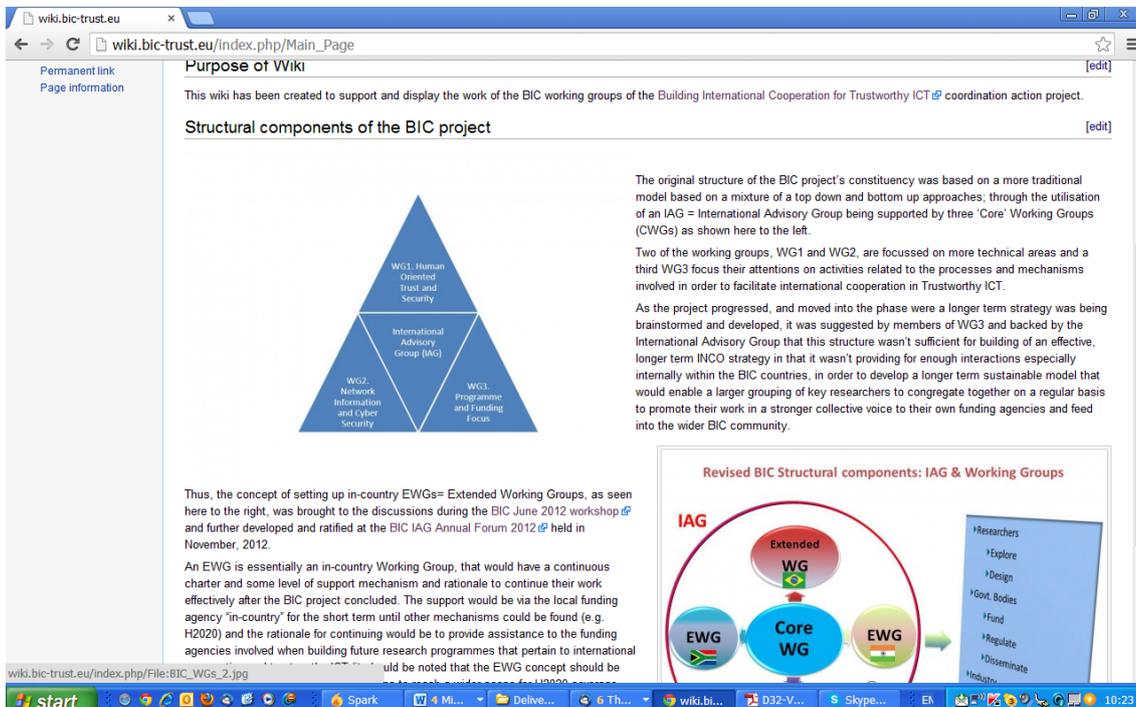


Figure 10. Home screen of the BIC WG's wiki site

6. Conclusions

This deliverable is the final report of Work Package 2, 'Platform for International Collaboration (INCO) and Consensus Building', which was responsible for building the INCO platform of the project, to include the necessary structural components to provide (a) the high level advisory roles, thought leadership and expertise in thematic areas within Trustworthy ICT for cooperation, (b) enabling the scoping and validating analysis and findings, (c) recommending potential actions and acting as a credible interface between the broader research community and programme management in order to succeed in the goals set out in the project, and (d) finally, acting as 'BIC advocates' within their respective countries, and organising local events to broaden the awareness of the project objectives. These aspects were successfully developed via establishment of the International Advisory Group (IAG) and thematic based core WG's. The final WP2 objective was to develop the instruments for self-driven long term INCO constituencies in the BIC target countries for the broad Trustworthy ICT research areas as accomplished by setting up the Extended Working Groups (EWG's).

This D2.5 report contains a summary of the building-process of the entire set of structured components of the BIC project, including the International Advisory Group, Core Working Groups (CWGs) and a newly formed concept of in country Extended Working Groups (EWGs) that will carry forward the work after the conclusion of the BIC project. For each of these components, the report details the scoping and setting-up procedures, terms of reference (coverage areas), objectives, structure, scheduled meetings, membership and description of what could be in the future for each of the components. The report also details the methodology to be used for identifying the topic-areas needed for international cooperation in a broad vision of Trustworthy ICT and details the supports offered to the platform by the project.

Based on the findings of the bi-lateral events in Brazil, India and South Africa and the first BIC Annual forum, three core working groups were scoped, set up and populated. The WGs membership consists of recognised members of the Trustworthy ICT and other cross-domain communities [see annex 1 for details] that have significant interest and knowledge through engagement in projects and/or initiatives related to international collaboration under the following headings: **WG1.**

Human oriented /citizen trust, privacy and security, focussing on topics related to a multi-disciplinary approach for INCO amongst all stakeholders;**WG2. Information security / Cyber security**, focussing on topics related to the need for international cooperation for enabling the protection of networks and systems; and **WG3. Programme management and funding**, focussing on the requirements, processes, mechanisms and barriers to enable collaboration opportunities.

The report summarises the main outcomes from each of the workshops of the BIC Working groups and provides links to the full reports of the events. Quite a large number of additional workshops were held due to two reasons: 1. the project decided to decouple the main technical workshops from their annual forum, which resulted in two major BIC events per year – one in Q2 and one in Q4; and 2. Due to the setting up of the newly formulated in-country Extended Working Groups, this resulted in additional workshops being held in all three of the BIC countries during 2013.

It has always been the intention of the BIC project to build into the spirit and methodology of the platform participants (IAG & WGs) the wherewithal to ensure successful outcomes with a strong focus on a longer term strategy for implementation and take-up after the project concludes. Ultimately, this has led to the establishment of the in-country EWGs, which can pro-actively and collectively with a much stronger voice gather local support while working closely with the policy

makers in the promotion of future work programmes, which will open up new possibilities for EU – International collaborations. However, there is still a strong message from the current participants that there is a need to make sure that what is being done is not allowed to dissipate, and there should be a clear focus on implementation, to reduce the frustration caused by improving collaborations with little or no implementation, due to 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, the project recommends that some action is taken to maintain the good work of the International Advisory Group, whether it is through existing initiatives, or setting up something new in H2020, as an IAG is crucial to keeping on board the right stakeholders to regularly co-ordinate cross domain activities related to International Cooperation and to get a bigger picture of what is going on in other areas within both the European and international R&D&I programmes. In addition, a recommendation regarding the continuance of the CWGs via the newly established NIS Platform is suggested since the majority of the BIC WG members are now involved in this initiative, many in leading roles of WGs and clusters within the WGs.

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Annex 1. Membership lists of the BIC project

A.1.1 International Advisory Group (IAG) members

IAG Country	Member	Position / Institution
Brazil	Leal de Andrade and Paulo Siqueria	INCO Unit, National Council for Scientific and Technological Development (CNPQ)
Brazil	Lisandro Granville	Director, CTIC (Research and Development Centre for ICT)
Brazil	Priscila Solis Barreto	Prof. University of Brasilia
South Africa	Isaac Maredi	Director: Information and Communication Technology, Department of Science and Technology
South Africa	Jan Eloff	SAP Meraka UTD & Prof. University of Pretoria
South Africa	Barend Taute	The Council for Scientific and Industrial Research (CSIR), Meraka Institute
India	Gulshan Rai	Director General, Government of India, Ministry of Communication & IT, Department of Information Technology (DIT), STQC Directorate. Also Director of Cyber Laws & eSecurity Group
India	A.S.A Krishnan	Sr. Director, Department of Electronics & Information Technology, Government of India.
India	Abhishek Sharma	Co-founder, MD & CEO, Beyond Evolution Tech Solution Pvt. Ltd.
India	Manmohan Chaturvedi	Prof. Ansal University
USA	Carl Landwehr, followed by Sam Weber	National Science Foundation (NSF)
USA	Rebecca Wright	Prof. Rutgers University, DIMACS NSF project
USA	Karl Levitt	Prof. University of California, Davis and former NSF
USA	John C. Mallery	Senior researchers at Massachusetts Institute of Technology
Australia	John Percival	Defence S&T Organisation (DSTO). involved with EU – Australia joint call.
Australia	Gary Morgan followed by John Zic	Commonwealth Scientific and Industrial Research Organisation. (CSIRO)
Australia	Rado Faletic	MONTRIOX Pty Ltd. Active in BI-LAT, FEAST and PAC-Net.
Australia	Malcolm Crompton	MD. Information Integrity Solutions P/L and former Privacy Commissioner
Canada	Andrew Reddick	Dir. National Research Council Canada
Canada	Pamela Moss	Director of the MCT Division of Natural Sciences and Engineering Research Council of Canada (NSERC)
Canada	Ann Cavoukian	Information and Privacy Commissioner for the Canadian province of Ontario
Japan	Yasutaka Sakurai	Chief, Dept. of International Affairs, Japan Science and Technology Agency (JST)
Japan	Hiroyuki Hishinuma	National Institute of Information and Communications Technology (NICT)
Japan	Kiyoshiro Tatesawa	In charge of EU-Japan coordinated call at Technology Policy Division, Global ICT strategy Bureau, Ministry of Internal Affairs and Communications (MIC). Interested in BIC but felt it necessary to remain neutral until call concluded.
Korea	Young Tae Cha	Program director for Ministry of Knowledge Economy (MKE) in the security area.
Korea	Souhwan Jung	Prof. Soongsil University, and former MKE
Korea	Heung Youl Youm	Prof. Soonchunhyang (SCH) University

A.1.2 Core Working Groups (CWG) Members

Following the BIC Annual forum 2011 at which the original CWGs were determined, the BIC project partners further scoped the terms of reference of the Working groups and invited interested parties to participate within the working groups. A deadline of 31st March 2012 was set for the first tranche of WG members submissions. The WG lists have been subsequently updated following each BIC Workshop.

A1.2.1 WG1 Human oriented /citizen trust, privacy and security

Member	Position / Institution	Country
Fernando Kraus Sanchez / Aljosa Pasic	BIC Representative WG Manager, AToS	Spain
Mireille Hildebrandt	Law Science Technology & Society (LSTS) at the Vrije Universiteit Brussel (VUB)	Belgium
Karima Boudaoud,	Ast. Professor, CNRS (National Centre for Scientific Research), University of Nice Sophia Antipolis, Unice	France
Mounib Mekhilef	Ability Europe Ltd.	France
Nick Wainwright	Senior Researcher, HP Labs Bristol	United Kingdom
Fabio Martinelli	Istituto di Informatica e Telematica - IIT, National Research Council - C.N.R.,	Italy
David Wright	Trilateral	United Kingdom
Rigo Wenning	W3C	France
Luis Velasco	European Data Protection Supervisor (EDPS)	France
Priscila Solis Barreto	Professor / University of Brasília	Brazil
Igor Ramos Rocha	Certificacao Digital, São Paulo	Brazil
Noemi Rodriguez	Catholic University of Rio de Janeiro (PUC-Rio), Rio De Janeiro	Brazil
Parminder Jeet Singh	Executive Director, IT for Change, Bangalore, India	India
Usha Rani Vyasulu Reddy	ICT for Development and former Director of the Centre for Human Development, Administrative Staff College of India (ASCI)	India
Jan Eloff / Donovan Isherwood	Research Director & Masters Research Associate SAP / Researcher	South Africa
Marijke Coetzee	Prof. / Senior Researcher at University of Johannesburg, South Africa	South Africa
Siani Pearson	Hewlett Packard	United Kingdom

A1.2.2 WG2 Network and Information Security/Cyber security

Member	Position / Institution	Country
Michel Riguidel	BIC representative WG manager, Institut Mines-Telecom, Telecom Paris-Tech (ENST)	France
Bart Preneel	Katholieke Universiteit Leuven	Belgium
Sotiris Ioannidis	Foundation for Research and Technology (FORTH)	Greece
Jaap-Henk Hoepman	TNO and Radboud University Nijmegen	Netherlands
Razvan Gavrilă / Lionel Dupre	ENISA	Greece
Nick Coleman	IBM	United Kingdom
Javier Lopez	University of Malaga, Malaga, Spain	Spain
Anderson C.A. Nascimento	University of Brasília, Sao Paulo, Brazil	Brazil
Christian Esteve Rothenberg	Fundação Centro de Pesquisa e Desenvolvimento (CPqD) (now at University of CAMPINAS)	Brazil
Abhishek Sharma	Co-founder, MD & CEO, Beyond Evolution Tech Solution Pvt. Ltd.	India
Manmohan Chaturvedi	Specialist Network & information security, Prof. ,Ansal University, Gurgaon, India	India
SH (Basie) von Solms	Prof. at University of Johannesburg	South Africa
David Taylor	University of South Africa	South Africa
John C. Mallery	Massachusetts Institute of Technology, USA	United States
Katrin Franke	Norwegian Information Security Labs	Norway
Gavin McWilliams	Centre for Secure IT (CSIT)	United Kingdom (Belfast)
Tahar Kechadi	University College Dublin	Ireland
Antonio Marcos Alberti	Inatel	Brazil
Ricardo Dahab	University of CAMPINAS	Brazil

A1.2.3 WG3 Programme Management / Funding Focus

Member	Position / Institution	Country
Neeraj Suri	BIC Representative WG manager, TU Darmstadt	Germany
Jim Clarke	BIC Representative Waterford IT - BIC coordinator	Ireland
Camille Torrenti	Sigma Orionis	France
Katja Legiša	Synchroniser	Belgium
Priscila Solis Barreto	Professor / University of Brasília	Brazil
Paul Cunningham	IIMC/IST Africa	Ireland
Alberto Masoni	INFN – National Institute of Nuclear Physics	Italy
Marcelo Pasin	SECFUNET	Portugal
Abhishek Sharma	NetEdge Tele-Solutions	India
Barend Taute	CSIR Meraka	South Africa
Rado Faletic	Forum for European-Australian Science and Technology cooperation (FEAST), BI-LAT, and PAC-NET	Australia
Andrew Hutchison	T - Systems, South Africa & Adj. Professor, University of Cape Town	South Africa
Ilari Lindy	Senior ICT policy specialist at The World Bank	Finland/United States
Karl Levitt	University of California Davis	United States
Balaraman Ravindran	Indian Institute of Technology Madras	India
Antonio Marcos Alberti	Inatel	Brazil
Evangelos Markatos	ICS-FORTH	Greece
Tania Regina Tronco	Telecommunications Researcher at Fundação CPqD	Brazil
John Zic	Research Team Leader at CSIRO	Australia
Claire Vishik	Intel Corporation	UK
Lionel Dupré	ENISA	Greece
Nick Wainwright	HP	UK
Volkmar Lotz	SAP	France
Karin Breitman	EMC2 (seconded from PUC-Rio)	Brazil
Rebecca Wright	Prof. at Rutgers Univ.	United States
Mahima Kaul	Fellow at Observer Research Foundation (ORF)	India

A.1.3 Extended Working Group (EWG) Members

The following sections contain the membership lists of the recently formed Extended Working Groups of the BIC project.

A1.3.1 India EWG

Member	Position / Institution
M. P. Gupta	IIT Delhi and Lead of EWG
Krishnashree Achuthan	Prof. Amrita University, Cyber Security Center
Sanjay Bahl	Senior Consultant CERT-In, DeitY
Jaijit Bhattacharya	HP India and Prof. IIT Delhi
Manmohan Chaturvedi	(Retd) Air Commodore ,Indian Air Force, Prof. Ansal University, Member BIC IAG
Parminder Jeet Singh	Executive Director, IT for Change, Bangalore
Mahima Kaul	Fellow, Observer Research Foundation (ORF)
Ponnurangam Kumaraguru	Assistant Professor, Precog@IIIT Delhi
Charu Malhotra	Associate Professor (e-Governance & ICT)
Aseem Mukhi	Consultant, Data Security Council of India
Balaraman Ravindran	Indian Institute of Technology Madras
Abhishek Sharma	Beyond Evolution Technologies, Member BIC IAG
Saurabh Singh	HP India
N Vijayaditya	Ex Controller of Certifying Authorities & DG NIC, Gov't of India
OP Wali	Prof & Head (CITT); Indian Institute of Foreign Trade
Governmental participation	
Gulshan Rai	Director General CERT-In, DeitY, Member BIC IAG
Klaus Alexander PENDL	First Secretary, Delegation of the European Union to India
BIC participation	
James Clarke	Waterford Institute of Technology, BIC coordinator

A1.3.2 Brazil EWG

Member	Position / Institution
Ricardo Dahab	Prof. Univ. of Campinas (UNICAMP), lead of EWG
Antônio Marcos Alberti	Prof. National Institute of Telecommunications (INATEL)
Diego F. Aranha	Prof. University of Brasilia (UNB)
Christian Esteve Rothenberg	Prof. University of CAMPINAS
Guillaume Ernst	IRD (Brasilia)
Joao Gondim	Prof. University of Brasilia (UNB)
Brendan Kelleher	Research Brazil Ireland project - Brazil office
Sergio Kofuji	Prof. University of São Paulo (USP)
Paulo E. Lovato	IBE (Instituto Estudos Brasil Europa)
Leonardo Luciano de A. Maia	INCO Programme National Institute of Telecommunications (INATEL)
Jean Everson Martina	Prof. Universidade Federal de Santa Catarina
Cecilia Matsumura	IBE (Instituto Estudos Brasil Europa)
Anderson C. A. Nascimento	Prof. University of Brasília
Igor Ramos Rocha	Certificacao Digital of Brazil - Experian
Noemi Rodriguez	Prof. Catholic University of Rio de Janeiro (PUC-Rio), Rio De Janeiro
Jacob Scharcanski	Prof. Federal University of Rio Grande do Sul Porto Alegre (UFRGS)
Marcos Antonio Simplicio Junior	Prof. Universidade de São Paulo - Escola Politécnica
Priscila Solis-Barretto	Prof. University of Brasilia (UNB)
Tania Regina Tronco	Telecommunications Researcher at Fundação CPqD
Jaime Stabel	Instituto de Tecnologia de Software (ITS)
Marcelo Zuffo	Prof. University of São Paulo (USP)
Governmental participation	
Paulo Siqueria	National Council for Scientific and Technological Development (CNPQ)
Augusto De Albuquerque	Minister Counselor, Head of Information Society and Media Sector.
BIC participation	
James Clarke	Waterford Institute of Technology, BIC coordinator

A1.3.3 Africa EWG

Member	Position / Institution	Country
South Africa		
Marijke Coetzee	University of Johannesburg, and Lead EWG	South Africa
Barend Taute	CSIR Meraka	South Africa
Jan Eloff	Research Director, SAP Research, Meraka UTD, Prof. Univ. of Pretoria	South Africa
Stephen Flowerday	Prof. Fort Hare	South Africa
Andrew Hutchison	T - Systems, South Africa & Adj. Professor, University of Cape Town	South Africa
Donovan Isherwood	Masters Research Associate, SAP Research	South Africa
Anne Kayem	Prof. Univ. of Cape Town	South Africa
Marianne Loock	Prof. University of South Africa	South Africa
Craig Rosewarne	Wolfpack Information Risk / SANS Institute EMEA	South Africa
Prof. David Taylor	University of South Africa	South Africa
Hein Venter	Prof. University of Pretoria	South Africa
Prof SH (Basie) von Solms	University of Johannesburg	South Africa
Members from across Africa**	** there may be additional members from Africa that attended the BIC EWG session at EuroAfrica-ICT P8. Their details are currently being compiled in the event proceedings.	
Dereje Yohannes Ashenafi	Adama Science & Tech. University	Ethiopia
Michael Kamuti Katundu	Communications Commission of Kenya	Kenya
Eunice Kariuki	Kenya ICT Board (KICTB)	Kenya
Patrick Mussa	University of Malawi (UNIMA)	Malawi
Mohamadou Arabani Saibou	l'Ecole Supérieure Multinationale des Télécommunications (ESMT)	Sénégal
Governmental participation		
Daan Du Toit	Department of Science and Technology, Gov't South Africa	South Africa
Isaac Maredi	Director: Information and Communication Technology, Department of Science and Technology	South Africa
George Mulamula	Tanzania Commission for Science and Technology	Tanzania
BIC participation		
James Clarke	Waterford Institute of Technology, BIC coordinator	Ireland

Annex 2. Digital Agenda Assembly Newsletter Results Article

BIC Intl. Cooperation Project launches 3 High Profile Advocacy Groups in Brazil, India, and Africa

Research results: 08/12/2013

The project Building International Cooperation for Trustworthy ICT (BIC) develops research and program level relations across EU and the target countries (Brazil, India and South Africa) and also identifies priority technology/policy areas of common interest. These objectives have been successfully accomplished with establishment of BIC's dedicated thematic working groups at the national and EU levels, cooperation priority formulations and BIC's International Advisory Group.

BIC furthermore advocates a dedicated strategy of fostering long-term international cooperation in Trustworthy ICT. Driven by the very strong interest from the international community, BIC proposed the strategy of forming in-country working groups (EWG's=Extended Working Group's) that will continue after the BIC project concludes in December, 2013. The main purpose is to maintain the current momentum of this group of researchers, which are supported by their governments, in order to strongly promote the vital research topics of mutual benefit for future international research collaboration.

“These achievements clearly address the long term strategy of BIC as it is pretty clear these structures can continue long after the conclusion of BIC. It shows the strong commitment of the research communities and governments of the BIC countries and their desire to cooperate with EU researchers also in relation to the upcoming Horizon 2020 programme.” (Jim Clarke of Waterford IT, BIC coordinator)

India

As tangible expression of interest by the target countries, the idea of long-term cooperation has garnered strong interest. It has already led to the launch of the BIC's 1st EWG in India in May 2013 supported by India's main government research agencies as well as influential policy and research planners. (For details on this launch meeting and a subsequent follow up workshop held in October 2013, please see: <http://www.bic-trust.eu/2013/05/22/bic-india-ewg-launch/> and <http://www.bic-trust.eu/2013/11/22/bic-india-ewg-october-2013-report/>)

Brazil

BIC is now happy to report that Brazil launched their EWG on 21-22nd October 2013 in São Paulo, Brazil, attended by many trustworthy ICT researchers from all over the country and government representatives. (For details please see <http://www.bic-trust.eu/events/bic-brazil-ewg-launch-meeting/>)

South Africa

The EWG South Africa concept was launched by Professor Marijke Coetzee of the University of Johannesburg at the Information Security South Africa conference ([ISSA 2013](#)), held during 14-16th August 2013 in Johannesburg, during which eight senior researchers have joined.

As agreed at the BIC IAG Annual Forum in November 2013, the membership of the EWG of South Africa would be expanded to include cyber security and trustworthy ICT researchers and government members from across all Africa, and a dedicated session was held on this during 2-3rd December, 2013 at the [EUAfrica-ICT P8 Forum](#) at the African Union Headquarters in Addis-Ababa, Ethiopia. (For details, please see <http://www.bic-trust.eu/2013/12/02/bic-south-africa-ewg-dec2013/>)

The final Annual meeting of BIC was held during ICT 2013 in Vilnius on 7th November 2013. More information on this event can be found at <http://www.bic-trust.eu/events/bic-iag-annual-forum-2013-at-ict-2013/>.

For details, please see: <http://www.bic-trust.eu/>