



BUILDING International Cooperation for Trustworthy ICT



Strategy for Coordination of the Cross Domain Activities & Multi-Lateral Approach in International Cooperation

BIC Presentation Paper

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Introduction

The purpose of the European Commission funded BIC coordination action project (<http://www.bic-trust.eu/>) is to foster cooperation between the EU and the international programme agencies and researchers in India, Brazil and South Africa within the focus areas of Trustworthy ICT, including trust, privacy and security, in order to:

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

The project is also working with the communities in a coordinating role in reflecting on a longer term strategy for international cooperation and this discussion paper summarises its findings to date. The project held a workshop entitled *Cross domain coordination of International Cooperation and technical themes in Trustworthy ICT and INCO* [1] in June 2012 and during this two day workshop, a number of international cooperation (INCO) projects participated and this discussion paper reflects on the results from this workshop and proposes a potential approach to follow based on the findings. The BIC Annual Forum and IAG meeting - November 2012, followed up the actions of June 2012 workshop.

- Strengthen EU's economic and industrial competitiveness;
- Jointly address global societal challenges;
- Support EU's external policies.

The Strategic INCO approach

In order to examine the challenge of moving from a bi-lateral to a multi-lateral approach, the project had held a workshop in June 2012 [1] bringing together a majority of the projects engaged in international cooperation to enable the following outcomes:

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

In addition to BIC, a wealth of experience was represented from the following international cooperation projects: **IST Africa**, **EuroAfrica-P8**, **FEED**, **AUS-ACCESS4EU**, **PACE-Net**, **EU – India Spirit**, **Synchroniser**, **Euro-IndiaGrid2**, **OpenChina-ICT**, **FIRST**, **FORESTA**, **PAERIP**, **SEACoop**, **EuroAfrica-P8** and **AMERICAS**. A full report of the BIC workshop can be found at [2]. The BIC Annual Forum and IAG meeting - November 2012 [6] followed up the papers and proposals of June 2012 workshop, ratified some of those and also

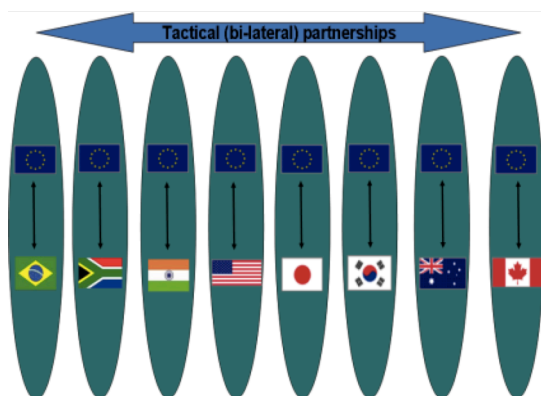


Figure 1 – Tactical (bi-lateral) approach versus



Strategic (multi-lateral) approach

The need for INCO

From the European perspective, cooperation with third countries and international organisations has been and will be promoted with the following objectives:

- Strengthen EU's excellence and attractiveness in research and innovation;

discussed subsequent actions and additional papers.

These projects gave their insights on their experiences and suggestions for improvement and the main point was agreement that it is a very good idea to move towards a more multi-lateral strategic position. However, in the discussions, it wasn't very clear how this strategy shift could occur within the current mechanisms that focus bi-laterally on seven (7) distinct regions.

In order to address this further, the BIC project are examining how the combination of their International Advisory Group and supporting working groups could assist in a move towards a more multi-lateral strategic approach.

The majority of the current INCO mechanisms support regional bi-lateral activities as shown in Figure 1. While this regional approach may work for higher level themes, the main difficulty arises when a particular research topic, for example, cyber security, needs to be addressed globally and multi-laterally amongst many regions and the bi-lateral approach is not suited for this type of longer term strategic activity.

Therefore, the BIC project is examining the feasibility of a more strategic approach based on multi-lateral partnerships as shown in figure 1.

BIC International Advisory Group (IAG)

The BIC project has established an international advisory group (IAG) with the following terms of reference.

The IAG will be the forum bringing together the countries representatives in a more strategic way;

- 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, 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.

The IAG has representation from all the participant countries from both the researcher communities and programme management (funding agencies). The IAG is there to suggest and formulate the policies, processes and mechanisms to achieve international cooperation in the area of the ICT Trust and Security community. Three independent working groups, WG1, WG2 & WG3 with specific objectives as defined in the BIC WG Terms of Reference [3], have been formed comprising specialists from different countries and different specializations. The areas and scope of the three BIC working groups are the following:

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 / Cybersecurity, 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.

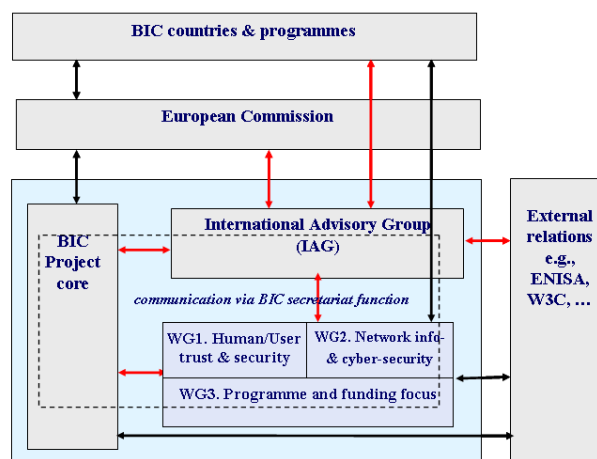


Figure 2 – Overall structure of BIC

Indeed, as shown in Figure 2, these WGs form the backbone of the Project; however, they alone would not be enough to take the entire project forward to its logical conclusion. They would, therefore, need to be supported by additional Groups and Sub-Groups in a structured manner at the management and functional level with defined focus area, roles and responsibilities.

A proposed strategy for Coordination and multi-lateral approach in International cooperation

Since the nature of an international project requires 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 becomes 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 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. Of course, the existence and role of a central body is essential for ensuring that the focus of the projects are not digressed and there is proper coordination amongst all adhering to the core principles and objectives of the project.

The terms of reference of BIC working Group specify that WG3 will focus on a multi-disciplinary approach towards international cooperation amongst all

stakeholders. Having recognized the importance and relevance of International cooperation on addressing the critical issue of “Trust & Information Security”, it is essential to appreciate that such a project needs special treatment to identify and define the objectives and manage its execution to achieve the desired results. This paper aims at highlighting various key elements that are essential to be considered from the start to define the objectives and manage the project, duly taking into consideration the challenges associated with a project of Global dimension and Cross-Domain activities. International Cooperation is an essential aspect that the IAG needs to address consciously. In this context it would be appropriate having a look at the resolution adopted at the UN General Assembly (Resolution adopted by the General Assembly: 57/239. Creation of a global culture of cyber security) placed at Annexure ‘A’ to this paper.

Key Elements

The strategy behind the success of a project of such dimensions and complexities, needing international cooperation critically hinges upon certain key elements, as described below that should necessarily be taken in to account through the life of the project.

1. Inclusive & All Pervasive Approach should be the essential theme for building up the right team and the scope of the project. Further since the project needs the international participation with involvement of individuals and bodies from different countries and organisations of diverse background, voluntary participation should be considered as a preferable criteria if not essential for participating organisation. It would be more effective and hence the same must be encouraged. Wider exposure to the project, through special efforts & mechanism, would be required to attract volunteers.
2. Scope of Work (SOW) Defining SOW with clarity is the next essential part for smooth progress of work and avoiding any ambiguity at later date.
3. Management Structure Commensurate with the SOW and deliverables with unambiguously defined hierarchy of Role and Responsibilities is another key element to help ensure Effective Management.
4. Focus: Projects of such diverse dimensions are prone to getting digressed from the original path / objective. Caution against such pitfalls and constant reviews are essential to stay focussed.
5. Vision, Mission & Targets: A management approach with well defined Vision, Mission & Targets is essential. While the project objectives should have a vision beyond an estimated period of time say five years, there has to be mission oriented approach for achievements in medium length of time, say 3-5 years. At the same time the progress of the project must also define short term action plans and targets that must be

achieved within the time blocks of 3 months, 6 months and one year.

6. Project Management: The project would also need to follow established principles of Project Management with special emphasis on following aspects:
 - a. Planning of resources, costs and time (time lines & mile stones) and a clear roll out plan.
 - b. A suitable monitoring mechanism associated with regular Review of Processes, People and Benchmarks.
 - c. Provision for Course Corrections of the project activities may also be required at times after the reviews.
7. Long Term Strategy: The threat to Trust & Security being an issue with constant possibilities of new types of threats coming up with time, the Project also needs to have long term strategy and provision for *Inclusion of Future Projects*.
 - a. Metrics: It would also be essential to measure the progress in definite terms and suitable metrics are essential to assess the state of the project at any point of time.
 - b. The project Roadmap: The nature of BIC project would not allow the classical approach to define the roadmap right in the beginning. A flexible approach with regular reviews at some defined milestones would be more appropriate to maintain a meaningful direction.
 - c. Conclusive & Smooth Closure: A good project needs to have a time bound closure in tune with the defined deliverables. *Metrics for Goal setting & Achievement* for assessing proper *implementation* and *Provisions for Carry Forward* to enable the project to smoothly roll on to the next level are essential elements for the concluding stage.

Main Stakeholders

The Project has three main stakeholders:

1. Researchers: These are the specialists of the field who are expected to explore various options, carry out necessary research and design the proposed solutions.
2. Govt. Bodies related to the area of research are required to examine and evaluate the proposals, allocate the funds, formulate the process of regulating the required funds and disburse the same in accordance with the defined process.
3. Industry: Role of the industry shall be to develop the products and solutions based on the designs provided by the researchers and take the developed products/ solutions to the market, to the people.

Way Forward

1. A lot of work and research studies in the area of “Trust & Security” are already going on across

different parts of the world. Many individuals and organizations- research institute/ corporate are busy doing work independently. Unfortunately most of the work is happening in isolation, in a disjointed manner with no systematic coordination and cooperation amongst each other. They are only accessing each other through open access methods of published papers, journals etc. Therefore, there is strong need to create a platform and associated mechanism which can bring all such work together in such a fashion that there is systematic and regular information exchange and mutual support. This cooperation platform would facilitates the work to become well-coordinated and consolidated such that combined and consolidated work is very comprehensive and becomes a formidable defence against the regular threats emerging across the globe and also ensures that duplication of work is minimized.

Structured Multi-Lateral Approach:

- a. At present, the International Advisory Group (IAG) formed under BIC, to formulate the policies and process to achieve international cooperation in the area of the work. Three independent working groups, WG1, WG2 & WG3 with specific objectives as defined in the BIC IAG TOR, have been formed picking up specialists from different countries and different specializations. Indeed, these WGs form the backbone of the Project; they alone would not be enough to take the entire project forward to its logical conclusion. They would, therefore, need to be supported by additional Groups and sub groups in a structured manner, at the management and functional level with defined focus area, role and responsibilities.
- b. Since the nature of the project requires 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 becomes 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 etc to 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. Of course the existence and role of a central body is essential for ensuring that the focus of the projects are not digressed and there is proper coordination amongst all adhering to the core principles and objectives of the project.

2. Working Group Structure: The proposed Multi-Lateral structure should have three main layers as shown in figure 3 :

- a. Core Working Group (CWG) ;
- b. Extended Working Groups(EWGs) - specific for each participating country and
- c. Special Function Groups – To be under EWGs as specialists at functional level.

3. The suggested role and function of this structure is as follows:

a. The CWG is at present constituted with three working groups WG1, WG2 and WG3 with representation from all participant countries and people chosen from different specialization. The composition of the CWG, with the three WGs at present, may be reviewed from time to time to assess if these WGs are adequate to cover all aspects of the projects or if any new aspects have emerged or any gaps are being observed for which additional WGs would be needed.

b. **The role of the CWG** is to address Strategy formulation, define high level objectives of the project and create a high level management structure and work flow processes to guide the project in the desired direction duly providing required support and assuming the overall leadership cum ownership position.

c. The CWG should be supported by Extended Working Groups (EWGs) which needs to be formed at each member country. The CWG should define the eligibility criteria for EWG members. The country representatives within the CWG should then take up the responsibility of forming the EWG of the respective countries selecting out of the eligible individuals, Research Institutes and the companies, mainly SMEs. *Voluntary participation* should be one of the main criteria to join the EWG.

d. **The EWG members** would be the key functional entities whose primary role would be to steer the project within the country and organize coordination with other member countries. In doing so, EWG would undertake the ownership of the following responsibilities:

- i Identify local functionaries: Researchers, Govt., Industry
- ii Form a country specific consortium of functional entities with defined objectives, functions and deliverables. This consortium of functional entities may be labelled as Special Function Group (SFG)
- iii Explain & Promote CWG Objectives & specific requirements to SFG by various means e.g. organizing regular workshops, seminars, events, interacting personally with other researchers and Govt. bodies thereby help forming a wider community.

- iv Prepare the project plan, in accordance with Project Objective and with emphasis on Project Cost, Resource Requirements and time frame/ time lines with the major involvement and support of the SFG.
- v Function as operational link between the CWG and SFG.
- vi Monitor & Manage In-Country progress through regular meetings/ Conferences.
- vii Gather Inputs & Process them: Analyze, Filter & Forward.
- viii Become a functional element for Multi-Lateral Cooperation, in that:
 - a. Interact closely with CWG and EWGs of other countries
 - b. Establish effective cooperation with other EWGs to share the work and resources mutually, in sync with the CWG.
 - c. Encourage and Support SFGs for multi-lateral cooperation.
- ix Help prepare & consolidate Budgetary Estimates. If required, they will also help initiating the Proposals duly coordinating with CWG.
- x Act as Committed Process Owners.
 - d. CWG then undertakes the role of
 - i. Identifying, coordinating and consolidating the Research and Technology Development (RTD) work of EWGs
 - ii. Monitoring the progress of EWGs and ensuring sustained focus.

The proposed management structure is given below in Figure 3.

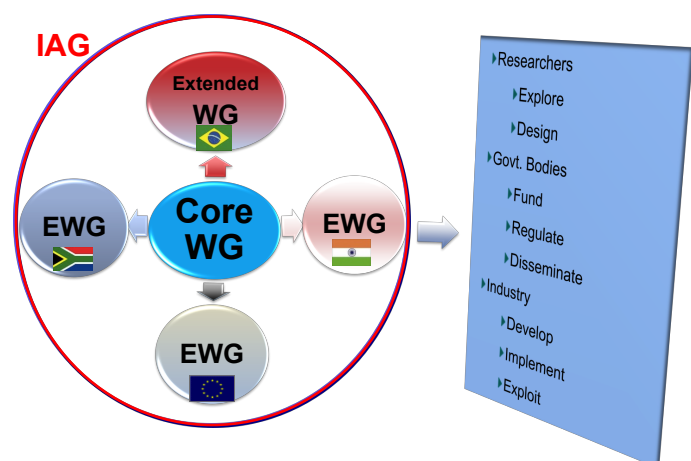


Figure 3 – BIC Multi-lateral IAG/WGs structure

4. Priority Areas for Research & Development (PARD):

- a. Having formed the EWGs, CWG creates a high level list of Priority Areas for Research & Development (PARD) work and provides this list to EWGs for their respective assessment and opting for topics for the projects.
- b. EWG interacts with SFGs, analyses the list of research area provided and reverts to CWG with their Proposed List of the Projects of Interest (PLPI).
- c. CWG analyzes the PLPI, selects the priority projects and consolidates all such project lists to prepare the List of Selected Projects.

5. Project Assignment & Planning :

- a. On finalization of the Selected Project, assignment of the same to EWGs is done by CWG where the commitment of EWGs is obtained. Having assigned the projects, the next steps are:
 - i Prepare High Level Action Plan (HLAP)
 - ii Develop Macro Project Plan (MPP): Services of experienced Project Management professionals are obtained who are inducted at the CWG and EWG level at this stage. The MPP is prepared based on the micro level project plan obtained from EWGs.
 - iii Consolidate and finalize the MPP for each EWG.
 - iv Analyze & Approve Project Resources as duly analyzed and proposed by EWGs.
 - v Budgetary Estimates are consolidated. Process for Allocation & Release of Funds and Disbursement Mechanism are also finalized along with the criteria and plan for disbursement. This may be done in sync with EC standards and processes.
- b. Monitoring & Review Process: Define the process specifying Schedule, Milestones & Benchmarks
- c. Prepare Long Term Strategy: This should incorporate the following:
 - i Provision for New Challenges & Threats,
 - ii Policy Review & Course Correction,
 - iii New Projects and
 - iv Backup provisions for Management Team.

Conclusions

Strategy plays the most crucial role for the success of any project. When the size and complexities of the project assumes international dimensions, it is incumbent upon the main body to work out a proper strategy and define structures and processes. However, while on one hand it is essential to observe strict discipline to execute the projects as per plan, despite taking all care and precautions, possibility of unexpected future developments and new projects/ prospects cannot be ruled out. It would therefore be wise to incorporate provisions for flexibility and future changes in case of such wide and complex projects.

The building of international cooperation is difficult when using a bi-lateral approach as it takes significant time for all of the parties to come together to try to align their activities and priorities. Therefore, it is even more difficult for a multi-lateral approach when building a longer term strategy as proposed within this paper. The BIC project has proposed a strategy and will follow up in the near future with interested countries as exemplars.

Acknowledgments

The BIC project [4] is funded by the European Commission's DG-CONNECT Unit H.4: Trust and Security [5].

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About the Authors

Abhishek Sharma is founder, MD & CEO of Beyond Evolution Tech Solutions Pvt Ltd (beTS). Abhishek has built beTS from scratch developing many mobile application and Solutions offering niche Utility VAS as ASP to large mobile users through many large Telcos like Vodafone, BSNL, MTNL, Idea, Airtel etc in India and abroad. Prior to founding beTS, Abhishek has worked for Indian Air Force for about 22 yrs and then for large corporate in India and abroad such as Programme Manager, GSM Backhaul/ Microwave Services, Tata Telecom, India; Country Head – Telecom SBU at TCS/ Tata Infotech, India; MD at Globacom Cellular, Nigeria etc where he managed large ICT Projects & Operations such as Radar, Telecom NW, BSS, OSS etc. Abhishek is also a renowned consultant on Mobile VAS, Telecom Network, Radar Data Systems & Avionics. Abhishek is B.E. in Electronics & Telecommunications, M.Tech Computer Sc (IISc) & M.B.A. in Marketing.



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