



ACTIVITY INITIATION AND FINANCIAL COMMITMENT*

International Conference on Biometrics for Borders 2019 (ICBB2019) - Morphing and Morphing Attack Detection Methods (9-10 October 2019 in Warsaw, Poland): 2019/RIU/SCD.7

*The approved Template constitutes with the annexed detailed estimated budget the financial commitment.

Total estimated budget: (see also estimated budget enclosed)	190,289.87 EUR Logistics: 94,949.87 EUR Participants: 90,930.00 EUR Procurement: 4,410 EUR
Ref. to budget line(s):	RIU - 3300
Implementation phase:	January 2019 - December 2019
Approval date:	

Non-financial actors ¹	Name	Date	Signature
Director of Capacity Building Division			
Head of Research and Innovation Unit			
Head of the Standardisation and Capacity Development Sector (ad interim)			
Activity Manager			
Other relevant internal stakeholders			

Operational Initiator	Financial Initiator	Operational Verifier	Financial Verifier	Authorizing Officer
Date:	Date:	Date:	Date:	Date:
Name:	Name:	Name:	Name:	Name:

¹ All relevant internal stakeholders

Signature	Signature	Signature	Signature	Signature
FINANCIAL DATA:			Please validate in ABAC commitments no: FRO. Missions (level 2) FRO. Participants (level 2)	

1. Objectives (purpose)

Biometric technologies that are used to recognise persons have become an integral part of the border checks process, with the application of biometric technologies providing new opportunities to border management to facilitate legitimate travelers while at the same time making borders more secure. At the same time, this large-scale integration of biometric technologies into the border control infrastructure introduces new challenges to border security: Biometric systems can be attacked and subverted for the purpose of passing through border control undetected. This means that with the introduction of novel technologies supporting biometric recognition, countermeasures that can prevent, detect or defeat such attacks are needed. For Frontex and the border management community, the exploration and development of advanced biometric technologies and related capacities is crucial to border security and the facilitation of legitimate travellers, especially when considered in the context of the set of EU-wide measures proposed by the Smart Borders Package. However, the Agency currently plays the role of contributor: Frontex participates in the conferences organised by other major players in the field of biometrics, who are not border management authorities, but who are increasingly setting the agenda on biometrics in the context border control and border security.

For this reason, Frontex RIU will organise a series of annual conferences - International Conference on Biometrics for Borders (ICBB) - dedicated to the topic of biometrics, its (possible) use in border control, and the challenges they may pose to border security. The **strategic objectives** of organising an annual Conference on Biometrics for Borders are:

- Position the Agency as a key player in this area of research by bringing together research institutions, academia, national authorities from Europe (MS/SAC²) and non-EU countries, and industry;
- Enable Frontex to become a driving force in providing support and expertise to Member States/COM on the topic biometrics, and the range of possible applications and implications for borders.

Different thematic areas of interest will be covered on a year by year basis, with the ICBB2019 focusing largely on the topic of morphing and its implications for border management, and will be organised in 9-10 October 2019 in Warsaw, Poland.

Scope of the ICBB2019

Morphing attacks in the context of border control is a relatively new and undocumented phenomenon. Researchers, industry and law enforcement authorities from around the world are actively engaged in research aimed at addressing and overcoming this threat. However, as of yet there is a lacking overview of the many different actions aimed at addressing and overcoming the threat of morphing attacks to border control.

² EU Member States and Schengen Associated Countries.

Frontex has undertaken a number of activities related to the topic of morphing and its implications for border control. In the context of the developed training course on Vulnerability Assessment and Testing for Automated Border Control (ABC) Systems, Frontex worked together with experts of the German Federal Office for Information Security (BSI) producing a small study presenting the topic of morphing and the issue of morphing attacks in a border control context for participants of this training to benefit from. This information has also been included by the Risk Analysis Unit in Handbook on Impostor Risk Profiles. In addition, an internal workshop on morphing was organised with the support of BSI for Frontex staff members on 13 September 2017.

The **primary objectives** for the ICBB2019 are:

- To bring together research institutions, academia, national authorities from Europe (MS/SAC³) and non-EU countries, and industry;
- To inventory *and* discuss ongoing (research) activities related morphing attack detection methods;
- To discuss the current situation and identify the scope of the problem for borders.

As such, the aim of the conference is to support and contribute to research activities undertaken in this area, at EU level and beyond. The conference will furthermore support and contribute to the strategic objectives of the Frontex Centre of Excellence for Combating Document Fraud (CED) and the European Commission in tackling document fraud, referring to the objectives of the European Commission as outlined in the 2016 Action plan to strengthen the European response to travel document fraud (RIU has actively contributed to the action plan, in particular in providing relevant and up-to-date information on the topic of morphing). Through the action plan the European Commission aims to strengthen Research and Development activities in the area of breeder documents and document verification, including addressing the issue of morphing, in the framework of the Horizon 2020 programme for Secure Societies 2018-2020. To underline the importance of this issue the European Commission has established a consortium on a morphing research program, which will be invited to the conference.

Implementation of the Programming Document 2019-2021

The objectives described in this document correspond to the work stream “**Capacity Analysis and Development**” under RIU-SCD (Standards and Capacity Development Sector - Capacity Analysis and Development) which are listed in the Programming Document 2019-2021. The activity is in line with the Sector’s **objectives for 2019**:

- To develop specific national capacities on morphing attack detection methods relevant to border control, as listed in the Annual Work Programme 2019;
- To develop thematic technical capacity building contents - in coordination with TRU - pertinent to the application of new technologies for border control.

The present activity template covers the organisation of an **International Conference on Biometrics for Borders for 2019, i.e. the ICBB2019 on the topic of Morphing and Morphing Attack Detection Methods**, parts of which may intersect and/or may be considered also of importance to the following RIU work lines:

Title	Activity ID
Technology Assessment and Innovation Sector	RIU-TIN
Border Security Observatory Sector	RIU-BSO

³ EU Member States and Schengen Associated Countries.

Standardisation and Capacity Development:	
- Development of standards for technical equipment	RIU-SCD.1
- Assessment and testing methodologies	RIU-SCD.2
- Development of thematic (technical) trainings	RIU-SCD.6

Benefits

The discussions and dialogue during the conference will result in the following benefits:

- Clear identification of the scope of the problem and possible mitigations: An exhaustive overview at EU-level in the format of a report on the outcomes of the conference and the different activities undertaken around the world aimed at addressing this problem in a proper, methodical fashion;
- Possibility to establish a network between border management authorities and academia for the exchange of information on on-going research and latest developments in morphing attack detection algorithms/methods;
- Position Frontex - in particular - as an active (global) player and contributor to this area of research and the field of biometrics in general, and enable it to fulfil its responsibility of providing support and expertise to Member States/COM on the topic of morphing and its implications for border control.

Overall indicators of Achievement

Establish a network for information exchange between all relevant stakeholders; Support the creation of an expert network (with an enhanced role for Frontex); Achieve > 80% participation rate across all invited stakeholders; Delivery of conference report cataloguing challenges and initiatives looking at tackling the issue; Participant satisfaction; Timeliness.

2. Description

2.1 - Preparations and delivery of the International Conference on Biometrics for Borders: Morphing and Morphing Attack Detection Methods

International Conference a conference dedicated to the topic of the use of biometrics in the context of border control, with the thematic focus for 2019 on morphing and morphing attack detection and its implications for document authentication and identity verification at the border. Conference to be organised on 9-10 October 2019 in Warsaw, Poland (2 days).

The strategic objective of the conference and the organisation thereof on an annual basis, is to position Frontex - and RIU in particular - as an active (global) player and contributor to this area of research and the field of biometrics in general, and enable it to fulfil its responsibility of providing support and expertise to Member States/COM on the topic of morphing and its implications for border control.

For the 2019 Conference the main goal is to bring together research institutions, academia, national authorities in Member States and non-EU countries and industry to inventory *and* discuss different ongoing (research) activities in morphing attack detection methods, to discuss the current situation and identify the scope of the problem for borders, and to support the objectives of the European Commission as outlined in the 2016 Action plan to strengthen the European response to travel document fraud and the European Commission's consortium on an morphing research program.

Objectives

- Establish an (international) network of border management authorities and academia

for the exchange of information on on-going research and latest developments in morphing attack detection algorithms/methods;

- Providing support to the European Commission and in particular its dedicated consortium on an morphing research program;
- More active support to Member States in the effort to detect and mitigate against morphing attacks;
- Produce an exhaustive overview in the format of a report on the outcomes of the conference and the different activities undertaken around the world aimed at addressing this problem in a proper, methodical fashion.

The conference will take 2 days and will be organised in plenary sessions/debates (possibility of split-off session may be considered). Although the programme is yet to be defined, the following areas of interest - selected due to a high level of relevance to border control - are proposed for discussion in and selection during the development of that programme:

- **Overview: Statistics on detection rates for morphing attacks:**
 - Importance of creating an objective overview of the nature and the size of the problem across and beyond the EU;
 - Promote secure and responsible exchange of information between Member States and Researchers (important, considering statistics are largely non-existent).
- **Morphing: *Processing techniques and Biometric Identifiers*:**
 - Morphing Techniques (e.g. how is it done/how can it be done);
 - Face Image;
 1. Look-a-like morph (i.e. two subjects highly similar in appearance).
 2. Non-lookalike morph (i.e. two subjects highly differing in appearance).
 - Fingerprint scan;
 - Iris scan.
- **Morphing: *Modi Operandi (definition/classification purpose)*:**
 - Morphing attack at the passport application process (Fraudulently Obtained Genuine Travel Document);
 - Morphing through modification of existing travel documents (Travel Document Fraud).
- **Morphing Attacks: *Attack points in the document-control chain*:**
 - Morphing attacks at the start of the passport application process;
 - Morphing attacks during border checks (either ABC, semi-automated systems, or manual border control);
- **Prevention and detection of morphing during enrolment (i.e. passport application procedures);**
- **Detection of image morphs during border checks (i.e. ABC, semi-automated systems, and manual border control);**
- **Training on morphing detection techniques;**
 - Human recognition *versus* automatic recognition;
 - Morphing detection approaches (related to training, i.e. focussed on human and machine-assisted detection techniques);
- **Morphing Attack Detection algorithms and Assessment Types of different Morphing Techniques;**
 - Algorithmic capability to detect facial morphing in still photographs and existing/novel face recognition algorithms and their resistance against morphing;
 - Vulnerability Assessment of Biometric Systems to Morphing Attacks.

Back-up: Rasa Karbauskaite

Deliverable	Indicators of achievement	Expected output
Conference	Timely delivery; 80% participation rate across all invited stakeholders; High-quality conference sessions, Overall customer satisfaction; Knowledge sharing; Participant satisfaction.	Conference tailored to the needs and requirements of both EC/Member States and research/academia and industry, i.e. covering the issue of morphing from multiple possible angles.
Report/Publication (limited distribution)	Timely delivery of high-quality catalogue of current challenges and initiatives looking at tackling the issue.	A final report in the form of a publication detailing the outcomes of the conference and presenting a high-quality, current overview of ongoing (research) activities in morphing attack detection methods, identifying the current situation and the scope of problem for borders.

Risk Category	Risk Description	Probability (High, medium or low)	Potential consequences/ Impact	Corrective action
Strategic	MSs showing no interest, no response, timing, conflict with other events, etc.	Low to Medium	Reduced quality of work/ Activity may have to be postponed.	Ongoing contacts with all stakeholders, early planning and increasing internal effort and work in order to accomplish the task.
	Continued unavailability or low interest of experts (research institutions and academia) to participate in the conference.	Low to Medium	Inability to carry out the planned activity/ Activity may have to be postponed.	Ongoing contacts with all stakeholders, early planning and increasing internal effort and work in order to accomplish the task.
Organisational	Lack of synchronisation of Frontex staff involved and/or delay in the administrative procedures (procurement).	Medium	Activity may have to be postponed.	Early planning and regular consultations with Finance Unit/relevant units; Periodic meetings with a project team.

	Lack of manpower to carry out all scheduled activities.	Medium to High	Activity may have to be postponed.	Reinforce the Project Team with extra personnel by Q1 2019; Reprioritise activities if deemed necessary.
	No availability of suitable venue (hotel or Frontex HQ) to organise the conference.	Low	Activity may have to be postponed.	Early planning and booking of venue.
Financial	Insufficient funds in the budget.	Low	Inability to carry out the planned activity.	Regular consultations with Finance Unit on the budget and procurement.

3. Stakeholders

Internal:

- Research and Innovation Unit (RIU)
- Training Unit:
 - Involvement foreseen on conference topics related to Training on morphing detection techniques (either as participant or contributor).
- Centre of Excellence for Combating Document Fraud (CED):
 - Involvement foreseen on conference topics related to prevention and detection of morphing attacks at the border (either as participant or contributor).
- Risk Analysis Unit (RAU):
 - Involvement foreseen on conference topics related to statistics, modi operandi, detection algorithms and assessment tools (either as participant or contributor).
- Vulnerability Assessment Unit (VAU):
 - Involvement foreseen on conference topics related to statistics, modi operandi, detection algorithms and assessment tools (either as participant or contributor).
- International and European Cooperation (IEC) Unit:
 - Liaison with international and European organisations and relevant authorities.

External (~175 participants including speakers):

- European Commission (EC consortium on an morphing research programme)
- EU Member States
- Third Countries
- Academic Institutions/Research Community
- EU Agencies (Europol, Joint Research Centre)
- Biometrics Community (e.g. European Association for Biometrics; Biometrics Institute)
- Industry

4. Management of the activity:

Unit/sector responsible for activity implemented: General direction: [REDACTED]

Implementation oversight for all lines: [REDACTED]

Operational (Activity) Manager: [REDACTED].

Operational (Activity) Team: [REDACTED]

Administrative and project support: horizontal support.

Other units/ sectors involved: for input on the conference agenda and considering the close relation of the topic to document fraud and overall document security; TRU with a possible

interest for translating (part of the) deliverables into training curriculum for border guards;
and considering the close link of the topic to risks and vulnerabilities for border checks.

5. Resources

Financial Resources required

Missions: n/a

Activity Total: 190,289.87 EUR*:

- Conference venue + event planning: 94,949.87 EUR (under existing Frontex Framework Contract)
- Participants: 90,930.00 EUR (at 100 participants estimated eligible for reimbursement)
- Services for writing conference report: 3,360 EUR
- Services for editing/publication of conference report (400 copies under existing Frontex Framework Contract) : 1,050 EUR




**including contingency up to 5%*

Human Resources required (Frontex) - consider also resources from other sectors/ units and the support functions in ADMIN (ICT/FIN/HR)

Total: 1.5 FTE

- 0.5 FTE: Research Officer (Activity Leader)
- 0.2 FTE: Assistant
- 0.2 FTE: Research Officer support
- 0.1 FTE: support
- 0.1 FTE: support and/or direct involvement
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6. Time schedule

Tasks	Implementation date	Responsible Actor
Conference preparations: - Documentation (concept note, online call, invitation letters, etc.); - Programme content development; - Location scouting/booking; - Managing invitations/list of participants.	January - September 2019	
Conference delivery	9-10 October 2019 (ED calendar marked for 9 October between 9-10 am)	
Post-Conference report delivery	November - December 2019	

7. Reporting

Title of report	Addressee	Deadline
Meeting minutes / report in preparation of the Conference	Activity Management Non-financial actors	10 working days after each meeting
Conference report	Activity Management Non-financial actors	December 2019

8. Approver guidelines (based on lessons learned)

- Provide HoU.RIU and DCBD with regular updates on the progress of organisation of the conference;
- Report significant issues and deviances within the planned activities as soon as identified. The report should include recommended corrective actions.