



**Call:** H2020-SEC-2016-2017  
**Topic:** SEC-14-BES-2016 - Towards reducing the cost of technologies in land border security applications  
**Start Date:** July 2017; **End date:** July 2020  
**Action duration:** 36 months  
**Action funding:** € 4 999 277  
**Type:** Research & Innovation Action

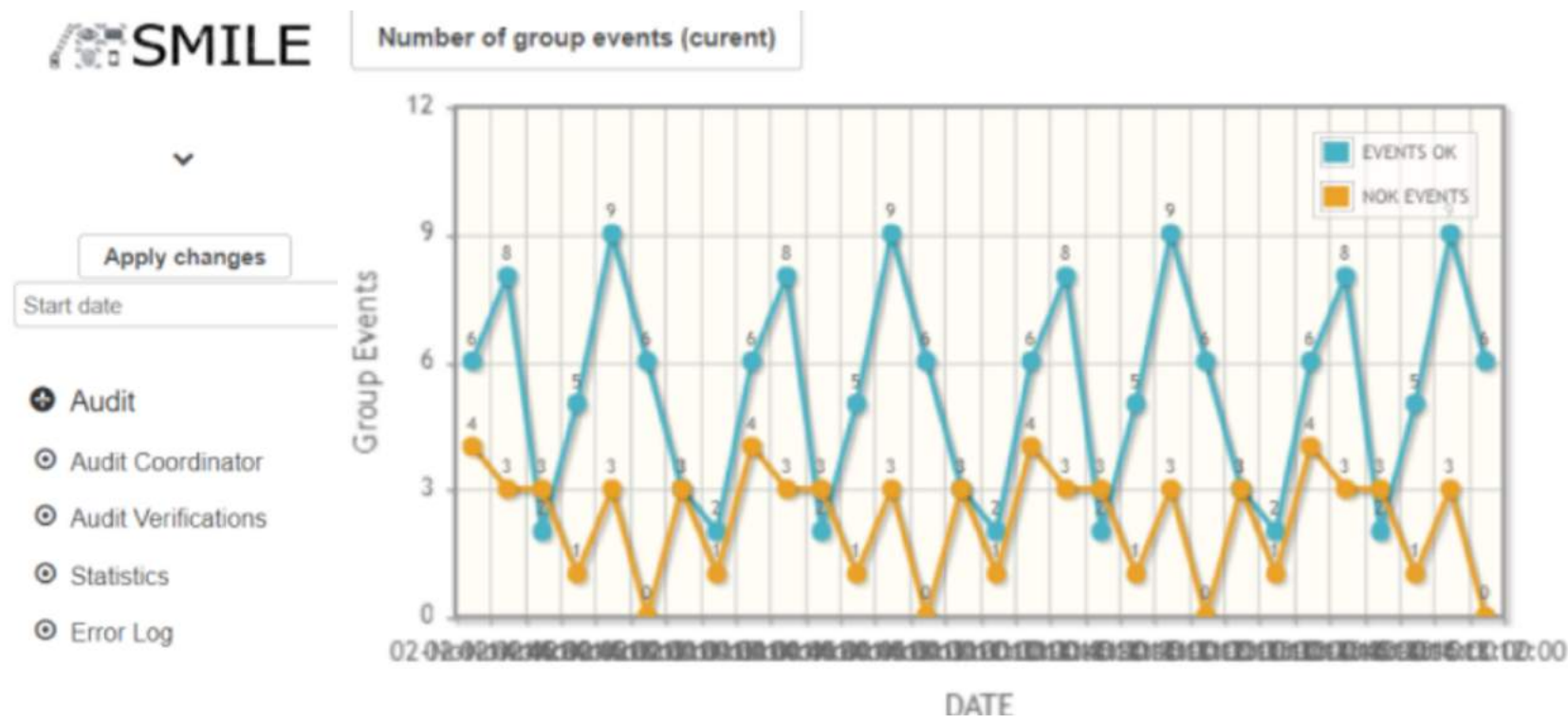


**SMILE Action aims**

to develop a prototype management architecture for accurate verification, automated control, monitoring and optimisation of people flows on land-border infrastructure using the capabilities of smart mobile devices in biometric testing for reliable authentication, as well as private cloud infrastructures for secure communications. The technologies developed will generate new solutions that complement existing approaches and make the management of land-border crossing points cost-effective, more secure, user-friendly while contributing to the traveller's privacy.

**SMILE Technologies**

**The SMILE Private Cloud infrastructure** includes biometric verification services through **encrypted data** and an **eID** verification module. Through the cloud, connectivity will be achieved with legacy systems and external databases and hence a risk assessment/alert management for travellers. Finally, statistics and reports will be offered to the BCP officials.



**In the context of SMILE Action**, we will use both **hard biometrics** (fingerprint, face, iris) and **soft biometrics** such as gender, age group, ethnicity etc. (both for individuals and groups) as part of a multimodal biometric verification process.



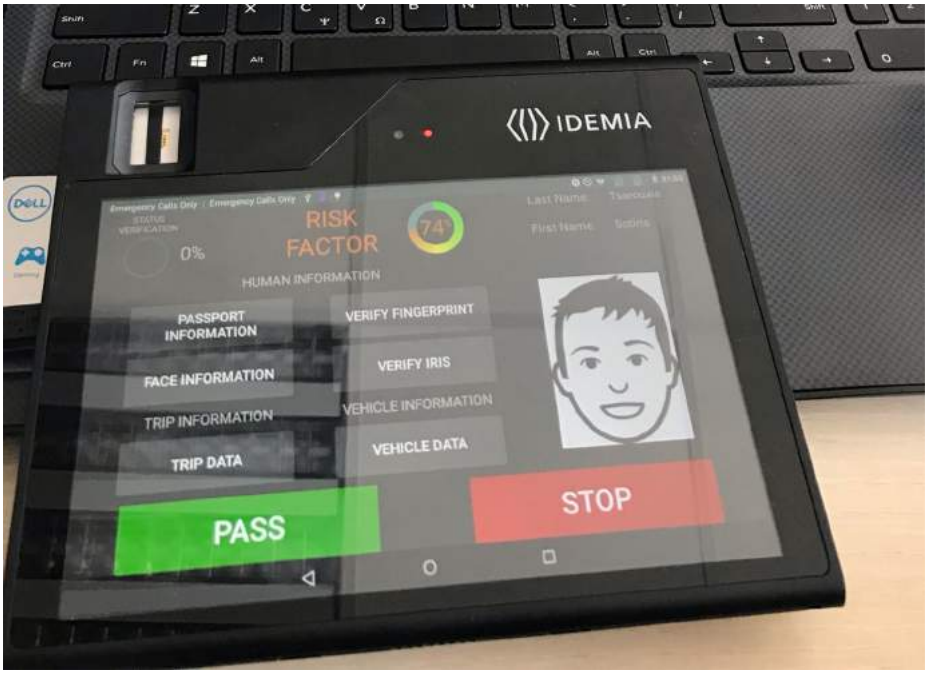
**SMILE Impact**

SMILE is designed to reduce border wait times through fast-lane access, leading to improve cross border capacity and benefit the border guards in terms of saved workload as a consequence of having to enrol a lower proportion of travellers. As SMILE introduces biometric multimodal methods for authenticating pedestrians and passenger in vehicles will contribute to improved control, enhanced safety and faster border crossing. The long-term effects will be the increase of effectiveness of immigration services, improvement of EU residents' sense of security, and the reduction of the cost of returns. Last, as SMILE system is built on the principles of security/privacy-by-design, so to respect privacy and ethics, will reduce legal and social implications.

**SMILE Action objectives**

(a) **Efficient**, risk-based, unobtrusive, on-the-move security control Introduction of mobile equipment for checks at land BCPs. (b) **Integrate** multimodal verification methods for higher border security level, (c) **Develop** services running on BCP that will allow their interoperability with other border management information systems (d)**Provide** an example of handling the storage and exchange of travellers' data in a legal and ethical way both at national & European levels, (e) **Provide** legal guidelines that should be adopted and taken into account for further designing and delivering of BCP related technologies, (f) **Demonstration**, validation & evaluation of the SMILE equipment within a real BCP.

**The SMILE Mobile Border Control Device** which includes sensors for capturing biometric traits and an ePassport reader. This device will guard users' identity and access through a secure element and secure communications.

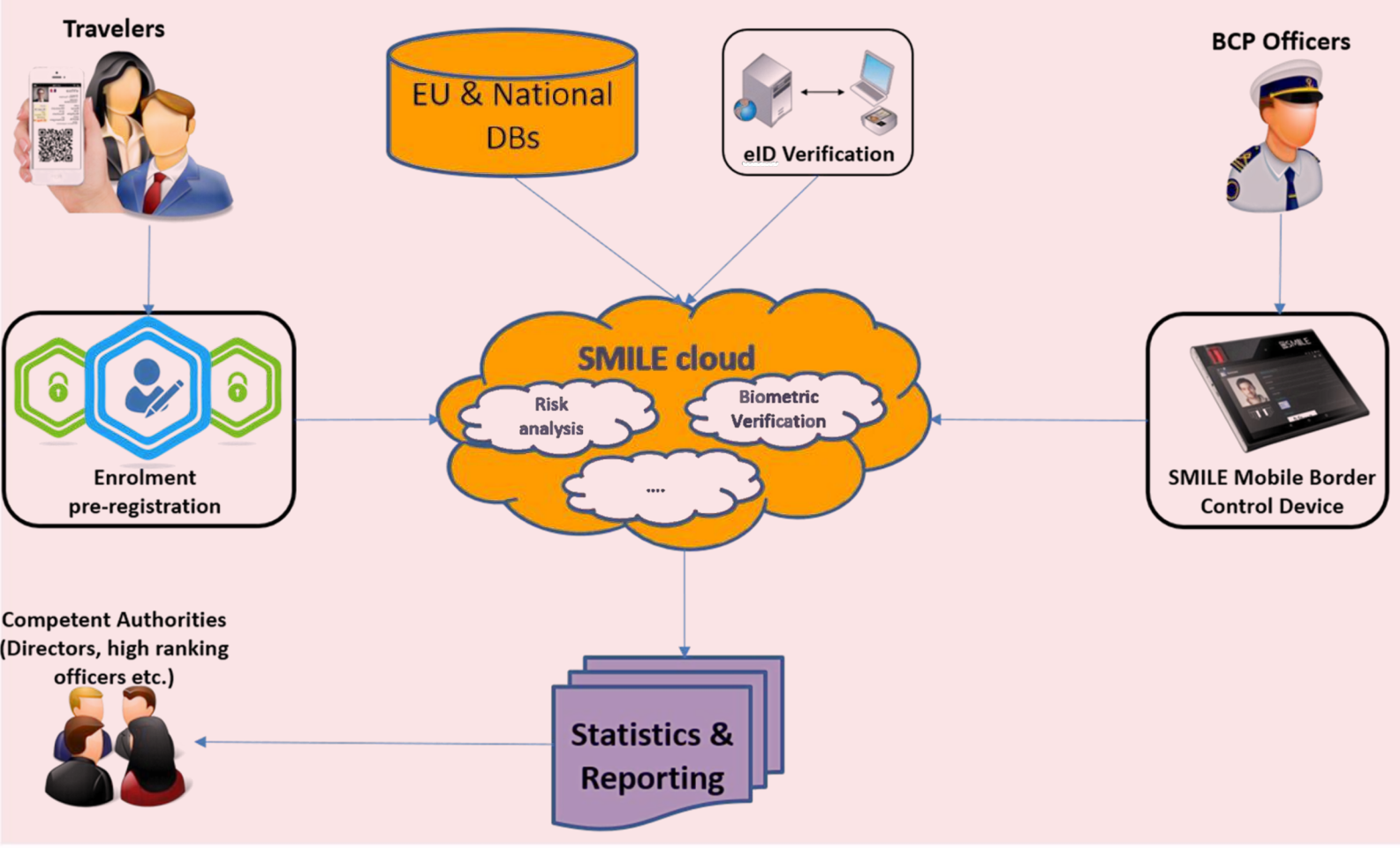


**The SMILE Smart Gateway** at the BCPs is the unit responsible for facilitating the secure, seamless and reliable interconnection of the SMILE backend (components and services on the SMILE cloud) and frontend systems (tablets, cameras, sensors). It is responsible for device registration and secure communication through the optical **PUF device**. Also, the SGW allows travellers' data pre-fetching.



**SMILE Approach**

- Like air-travel “check-in”, travellers will provide their information prior to their arrival at the Border Crossing Point (Enrolment to SMILE system and travel pre-registration).
- SMILE system will collect information from national & international databases & run a “risk analysis” on the traveller(s).
- If no alerts are risen, the traveller(s) will be allowed to go through the “fast-lane”, where a final identification will be required
- Bus passengers will be treated as a group instead of individuals, aiming to improve the flows at the borders.



**SMILE Action Partners**



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