Quinta Giornata programmatica Piattaforma Serit

Contributi della Piattaforma SERIT
Work Programme 2018-19 – SC7 – Secure societies

Introduzione

- La Piattaforma SERIT ha sviluppato una Roadmap di Ricerca, che ha permesso di far emergere le eccellenze italiane del mondo della Ricerca e dell'Industria, nel campo della Sicurezza.

- La *Roadmap* (pubblicata nel vol.2 di SERIT, www.piattaformaserit.it) è uno strumento che può aiutare le PPAA a pianificare le attività di R&D.

- L'implementazione della *Roadmap* passa attraverso i finanziamenti pubblico-privati, regionali, nazionali ed europei, che permettono di sviluppare tecnologie, applicazioni e soluzioni, in linea con le politiche di riferimento (es. *Cybersecurity*, Maritime Security)

Introduzione

- La fase di indirizzamento delle priorità di ricerca ed innovazione che verranno messe a bando sui fondi regionali, nazionali ed europei è critica:
  - Eccellenza scientifica
  - Valore strategico
  - Cooperazione nazionale ed internazionale

  Pubblicazione SERIT Vol. 3 – 2013 (Food for thought Paper on H2020)

- La fase di risposta ai bandi, dove la Comunità scientifica di SERIT, discute i contenuti, la composizione dei consorzi, lesson learnt.
  - Un esempio di successo è stato il progetto FP7- SEC: EDEN

CONTESTO

- La Piattaforma Serit ha distribuito a Dicembre u.s. un questionario per la raccolta di idee e proposte utili per veicolare gli interessi della community Italiana nella definizione Topic del Work Programme 2018 - 2019 Secure Societies

- La raccolta delle proposte è stata organizzata nei 5 filoni di ricerca previsti nel WP Secure Societies
  - Border Security
  - Critical Infrastructure
  - Digital Security
  - Disaster Resilience
  - Fight Against Crime

- Al compilatore è stato richiesto di articolare i diversi aspetti dell'idea progettuale quali:
  - Dimensione del progetto
  - Specific Challenge
  - Scope
  - Expected Impact
  - TRL
  - Indicare se la tematica è già presente nelle TA del Serit

I questionari ricevuti sono stati valutati da tre angolazioni:

- Coerenza con la sintesi espressa nel Vol 3 Serit «Food for thought Paper on H2020» in merito alle priorità della ricerca sulla sicurezza (lighthouse projects)
- Coerenza con le indicazioni di altri panel attivi in Europa per la definizione dei topic
- Valutazione delle sinergie con i temi indirizzati in ambito distretti e cluster

- Fornire alla Delegazione Italiana temi di ricerca da supportare verso la Commissione Europea
- L'analisi fornisce lo spunto anche per aggiornare, a distanza di tre anni, la lista delle priorità indicate nel Vol3 del SERIT

RISULTATI

	Proposte Ricevute	Proposte da Membri Serit
Border Security and External Security	11	4
Critical Infrastructure Protection	12	7
Digital Security Focus Area	5	4
Disaster-resilience: safeguarding and securing society	10	8
Fight Against Crime And Terrorism	7	1

Border Security and External Security

Principali tecnologie indirizzate
- Satellite Remote Sensing e Microsat
- Underwater sensors
- Over the horizon sensing

secondo la Tassonomia SERIT (vol.1):
- TA1.2 Data fusion di sensori eterogenei,
- TA1.8 Piattaforme di sorveglianza marittima, terrestre e aerea

<u>Altre Indicazioni da Tavoli di Stakeholder Europei</u>

- CSA to develop a cluster/PPP on "Integrated Border and Maritime Security"

- Data exchange, Interoperability, Big Data, Situational Awareness, System and Sensors

<u>Lighthouse projects SERIT (dal Vol.3)</u>

- Riproposto come Topic di interesse

Topic Description (Proposta)

- **Increased Awareness in Maritime Multi Domain Applications**

Specific Challenge

The cooperation among involved operators addressed by the <u>EU Maritime Security strategy</u>, the implementation of the <u>CISE Roadmap</u> and the technology advances are all aspects that will improve the maritime situational awareness; the combination and the evolution of low cost radars, hyperspectral, dust of sensor, space observations (just to name a few), and the platforms (Space, Air, RPAS, UGV, UUS,…), combined with modern data fusion and big data management techniques provide the means to address a variety of sectorial applications for border surveillance missions

Type of Action:

- **PCP**

Topic Description (Proposta)

Wide area real-time almost continuous maritime border surveillance with dense microsatellite constellation

Specific Challenge / Scope

In a scenario where maritime borders are continually approached and crossed by a number of ships, illegal activities take place that often go unnoticed or are untimely discovered. A resilient and cost effective surveillance system that is able to widely monitor national maritime border areas is still missing. The specific challenge is to conceive a new constellation of several micro-satellites, or to re-use different existing satellites by exploiting the concept of "virtual constellation" or a hybrid configuration. A dense real or virtual satellite constellation will be able to shorten the revisiting time to match the scenario requirements. The system output must be compliant to end-user data requirements in order to maximize the information usability by border security authorities

Type of Action:

- **RIA**

CONTRIBUTORI

- Filar Optomaterials (2)
- Finmeccanica (2)
- Università degli Studi di Cassino e del Lazio (2)
- Università degli Studi di Pisa/CNIT RaSS (2)
- Telespazio S.p.A.
- Remocean S.p.A.
- Università di Brescia

Critical Infrastructure

Principali tecnologie indirizzate
- Interoperabilità
- Soluzioni ICT per la trustworthiness
- Piattaforme tecnologiche end to end
- Sensori per early warning e detection

secondo la Tassonomia SERIT (vol.1):
- TA3.3 Individuazione di eventi anomali basata sull'analisi integrata di misure ambientali, comportamentali e fisiologiche, incluse le biometriche

Altre Indicazioni da Tavoli di Stakeholder Europei

- Data exchange, Trustworthy ICT, Big Data Analysis, Risk Methodologies

Lighthouse projects SERIT (dal Vol.3)

- Riproposto come Topic di interesse

Topic Description (Proposta)

- **Improving Critical Infrastructure Resilience**

Specific Challenge

CI protection requires a whole life-cycle approach from risk analysis for the identification of threats, to the identification of countermeasures and of contingency plans, to monitor, to the activation of proper mitigation actions and response. It is of paramount importance to identify which components, if compromised, can lead to significant service delivery disruption. An analysis of the possible topologies which are inherently robust w.r.t cyber attack is needed. Similarly an assessment of the dependencies analysis of critical services and impact assessment of possible cascading failures is key to increase the CI resilience. A key research challenge in addressing these fundamental questions lies in the effective understanding of the cyber-physical and cascading effects aspects.

Type of Action:

- **CSA**

Topic Description

- **Real-time monitoring and control of heterogeneous, inter-operating, critical ICT infrastructures**

Specific Challenge

- Many functions (such as: electric grid, oil and natural gas production, transportation and distribution, water supply networks, e-health, and more) that are vital to the society at large, currently rely on services that are implemented on top of complex heterogeneous, inter-operating, ICT infrastructures. In order to manage and supervise such complex, highly non-linear, geographically distributed systems, in a secure, resilient, and timely manner, a leap forward in monitoring and control techniques and technologies is needed.

Type of Action:

- **IA / RIA**

CONTRIBUTORI

- Eurocontrol spa (2)
- Università di Pisa/CNIT-RaSS (2)
- AIIC
- Calzoni-L3
- D'Appolonia
- ENEA
- Open Media Cluster
- Integra Solutions srl
- Tecnoalimenti
- Telespazio S.p.A
- Università degli Studi di Napoli Parthenope

Digital Security

Principali tecnologie indirizzate

- End to End Cybersecurity

secondo la Tassonomia SERIT (vol.1):

- TA5.2 Sistemi ICT sicuri e resistenti agli attacchi
- TA 5.3 Piattaforme, architetture ed algoritmi per l'analisi in tempo reale di grandi volumi di dati
- TA5.4 Metodologie e sistemi per il monitoraggio di grandi architetture di rete ICT

Altre Indicazioni da Tavoli di Stakeholder Europei

- Standardization / Certification

Lighthouse projects SERIT (dal Vol.3)

- Building a trans-national infrastructure for cyber-security data sharing and analysis
- Developing techniques and tools for forensics in the cloud.

Proposed Topic (1)

Topic Description

- **Cybercrime fight through technology and education**

Specific Challenge

- Cybercrime activities can be carried out against vulnerable hosts in order to exploit these systems to steal sensitive information from an organization. There is a need for a comprehensive design and development of a solution that can fully cover computer security of a given environment, in order to deal with cyber attacks. Particular attention should be given to attacks implemented inside the network. Focus on mobile device management (MDM), mobile application management (MAM) and cloud cybersecurity are all aspects have to be kept in the response to this topic in order to strengthen the monitoring of business users' mobile devices. Training activities for business users shall be also part of this response.

Type of Action:

- **IA / RIA**

Topic Description

- **Protection against attacks based on social networks**

Specific Challenge

- Social networks have become a major attack vector for companies and the Public Administration. While in the past most incidents were related to individuals being persuaded to disclose personal information (e.g. bank details, usernames, and passwords), the threat has now become just as real for companies and public administration bodies. The problem is exacerbated by the fact that social networks are growing in importance to business, and companies are rapidly opening up their systems to smart phones and tablets, which ultimately results in a dramatic increase in the number of "contact points" with social networks. Proposals should investigate the vulnerabilities of business ICT infrastructures that are specifically related to social networks, and develop protection mechanisms.

Type of Action:

- **IA / RIA**

CONTRIBUTORI

- ASSOCIAZIONE MUSEO ENERGIA
- CNR - IEIIT
- Università degli Studi di Napoli Parthenope
- Università degli Studi di Pisa/CNIT-RaSS

Disaster Resilience

Principali tecnologie indirizzate
- Sensori and Sistemi di Supporto Decisionali

secondo la Tassonomia SERIT (vol.1):
- TA4.6 Piattaforme e sistemi di comando e controllo

Altre Indicazioni da Tavoli di Stakeholder Europei

- Standardisation

- More Modular Approach

- European First Responder Architecture toward interoperability

- New sensors, systems and tools supporting First responders on the field during emergencies

- Post disaster quick assessment

Lighthouse projects SERIT (dal Vol.3)

- Riproposto come Topic di interesse

Proposed Topic

Topic Description (Proposta)

- **Dual use advances in Disaster Resilience Applications**

Specific Challenge

- A synergy between civilian and military research is the cornerstone of this topic. Technologies, equipment, devices and protocols which can be employed in a crisis situation has been produced by years of research in multiple fields. It is time to foster a closer cooperation and cross fertilization between the two environments in order to benefit of the different approaches, knowledge, and requirements and set a common base optimizing the research cost. The main objective is to make steps ahead in reducing time to market and costs for efficient, rapid, multi-target, high-throughput, ruggedized systems taking into account new priorities regarding the improvement of the smart cities resilience against crisis events and disasters with specific focus on asymmetric terroristic threats.

Type of Action:

- **IA**

- Università Cattolica del Sacro Cuore (3)
- Consiglio nazionale delle ricerche (2)
- CNR/Start up innovativa "Detoxizymes"
- D'Appolonia
- Filaroptomasterials srl
- Università degli Studi di Firenze
- UNIGE

Fight Against Crime

Principali tecnologie indirizzate
- Sensori and Sistemi di Supporto Decisionali
- Big Data Management

secondo la Tassonomia SERIT (vol.1):
- TA 5.1 Fusione delle informazioni raccolte da diverse sorgenti
- TA 6.1 Sensori di elevata sensibilità per la rilevazione di composti in tracce

Altre Indicazioni da Tavoli di Stakeholder Europei
- CSA in order to coordinate this action with other EU initiatives e.g. forthcoming "Cyber Security" PPP activities and the NIS initiative
- Applications of big data technologies for investigation purpose by police forces, detection of unusual behavior, frauds, new threats and future expansion of crime trends in specific areas and regions.
- Standardization and Certification

Lighthouse projects SERIT (dal Vol.3)
- Riproposto uno dei Topic di interesse

Proposed Topic

Topic Description

- **Improving European capabilities in countering crime**

Specific Challenge

- The need is to perform web crawling and data mining on very large amount of data including texts, videos in various languages and identify information of interest for police forces and the share the results among the various country based agencies is key to protect the European Homeland. To get the goal of sound data sharing among agencies, it is key to progress towards standardized and certified dataset applicable for forensic purposes and to consolidate procedural mechanism for data sharing. This is view also to elaborate synergies with different EU initiatives e.g. forthcoming "Cyber Security" PPP activities and the NIS initiative.

Type of Action:

- **CSA**

CONTRIBUTORI

- Universita di Genova (2)
- Alma Mater Studiorum-Università di Bologna
- CNR-IEIIT
- Università degli Studi di Palermo - Department of Psychological and Educational Sciences
- Università degli Studi di Pisa/ CNIT-RaSS
- SENSICHIPS

Other Actions

Topic Description (Proposta)

- **Enabling synergies between SC7, ESIF and local funds**

Specific Challenge

- To strength synergies between SC7 and the ESIF (European Structural and Investment Funds). Improve the coordination and the support for the regional and local authorities in order to synchronize and develop the ESIF programs to SC7 H2020 calls and SC7 Work Program.

Type of Action:

- **CSA**

Rilevanza dei topic per distretti e cluster

TEMI	Cluster Aerospazio	Cluster Agrifood	Cluster Smart Communities	Cluster Trasporti	Distretto Cyber Security	Smart Specialization Lazio	Smart Specialization Liguria	Smart Specialization Calabria	Piattaforma ACARE	Piattaforma SPIN-IT
Border Security	√				√	√	√		√	√
Critical Infrastructure	√	√	√	√	√	√	√	√	√	√
Digital Security			√		√		√	√		
Disaster resilience	√		√		√	√	√			√
Fight Against Crime			√		√	√				