



The STOP-IT Project

Strategic, tactical and operational protection of critical water infrastructure from physical and cyber threats

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Outlines



STOP-IT : The challenge addressed



STOP-IT : overview and objectives



STOP-IT : The risk management framework and technical outcomes



STOP-IT : The project progress so far



The interactions between water utilities, IT industry and R&D

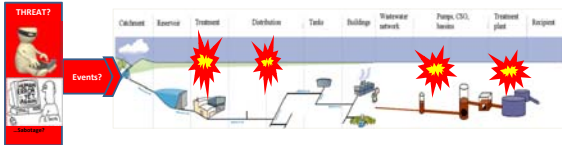


Why is STOP-IT important?



The challenge addressed

Water supply and sanitation infrastructure, as critical infrastructure, can be endangered, disrupted or destroyed by events related to physical and cyber threats including deliberate attacks with fatal consequences to society.



- There is
- an urgent need to efficiently tackle cyber-physical security threats,
 - an existing risk management gap in utilities' practices and
 - an un-tapped technology market potential for strategic, tactical and operational protection solutions for water infrastructure.



STOP-IT : overview and objectives (1/3)

STOP-IT aims at:

Making water systems secure and resilient by improving preparedness, awareness and response level to physical, cyber threats, and their combination, while taking into account systemic issues, as well as cascading effects.

The Programme and the structure of STOP-IT :

- Topic: H2020 - CIP-01-2016-2017
- Type of action: IA
- Coordinator: SINTEF, Rita Ugarelli rita.ugarelli@sintef.no
- Number of partners: 22 (+ 5 third parties)
- Countries involved: NO, ES, DE, BE, IL, NL,
- EU contribution: 8,255,757.25 €, total cost 9,616,525 €
- Runs over the course of four years (2017 – 2021)
- Organized in ten work-packages

- Norwegian partners: Oslo VAV, City of Bergen, Mnemonic, SINTEF.
- Associated Norwegian partners: NTNU, POWEL, NORSK VANN



STOP-IT : overview and objectives (2/3)

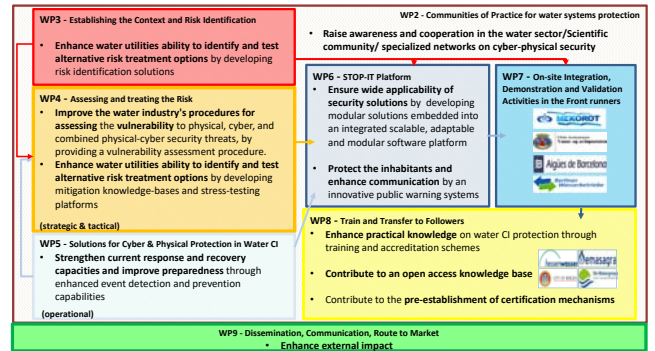
Who are we?

STOP-IT involves 22 partners from across Europe and Israel

7 research centres SINTEF IWW KWR CETAQUA TECHNION	6 Industry / SME sector Atos PNO WORLD OF SENSING RiSA mnemonic WasTP	4 Front Runner Water Utilities MEKOROT Aigües de Barcelona Berliner Wasserbetriebe 4 Followers Water Utilities hessenwasser emasagra
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STOP-IT : overview and objectives (3/3)



STOP-IT STOP-IT : The risk management framework and technical outcomes



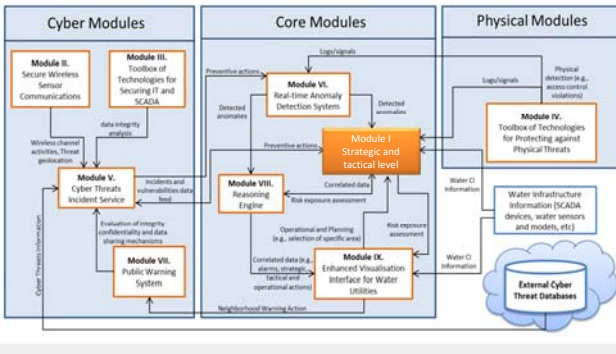
STOP-IT STOP-IT risk management framework – function and categories

STOP-IT RISK MANAGEMENT FRAMEWORK core component

Function	Category			
What processes and assets need protection?	Identify	Asset Management Data Management Governance Risk Assessment Risk Management Strategy		
	What safeguards are available?	Protect	Access Control Awareness and Training Data Security Information Protection Processes & Procedures Maintenance Protective Technology	
		What techniques can identify incidents?	Detect	Anomalies and Events Security Continuous Monitoring Detection Processes Response Planning
			What techniques can contain impacts of incidents?	Respond
		What techniques can restore capabilities?		Recover

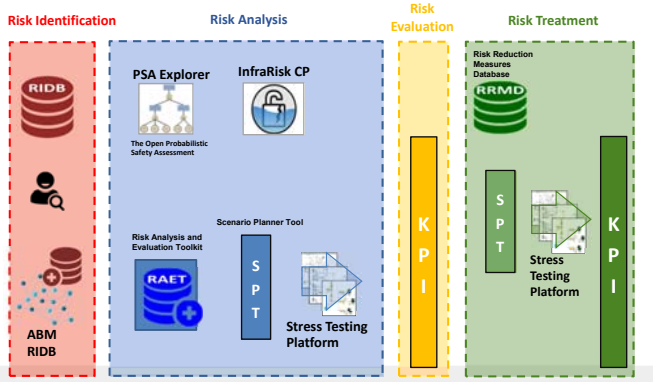
STOP-IT STOP-IT risk management framework – technological outcome

An **Integrated, Scalable, Adaptable, Flexible** STOP-IT platform, developed up to at least **TRL 7**, which will integrate the modular components, at different TRL levels, including:



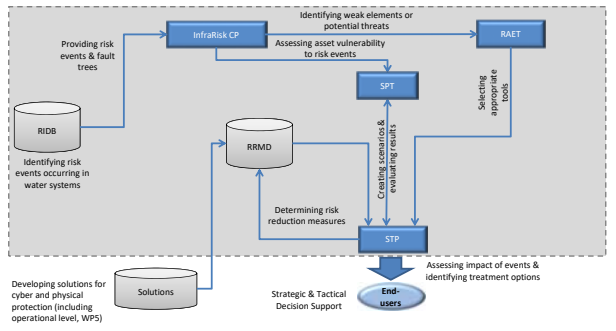
STOP-IT STOP-IT risk management framework – technological outcome – MODULE I (1/2)

Processes and Main Tools in Module I - Strategic and Tactical Risk Assessment



STOP-IT STOP-IT risk management framework – technological outcome – MODULE I (2/2)

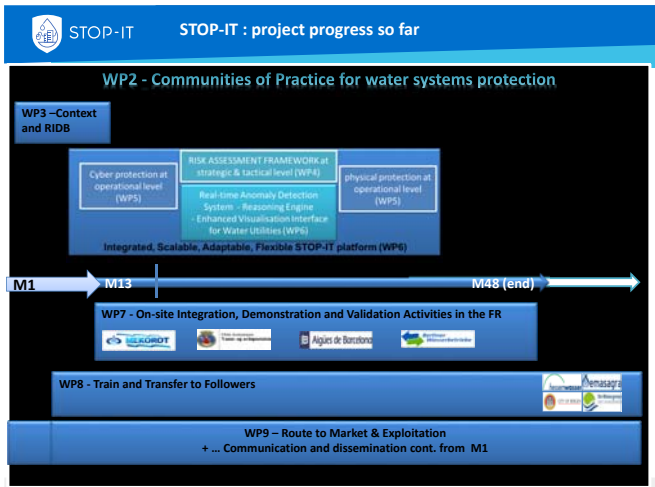
The interaction among tools in Module I - Strategic and Tactical Risk Assessment



STOP-IT STOP-IT risk management framework – technological outcome – Cyber and Physical Modules

Modular Components of the STOP-IT Platform

Module	Description
Secure Wireless sensor communications module (Module II)	A module capable of analysing the wireless spectrum range of several technologies (from WiFi to cellular) to detect different types of radio security threats , such as Denial of Service .
Toolbox of technologies for securing IT and SCADA systems (Module III)	Toolbox to monitor and protect the data integrity of these systems, both against intentional attacks or malfunction. They include a Blockchain-based scheme to assure the integrity of all the data generated during a CI operation (logs, sensor data, etc.).
Toolbox of technologies for protecting against physical threats in CI (Module IV)	Five different tools like a human presence detector using WiFi signals, a coordinated network cameras , or an innovative access control system which uses electronic locks and a mobile application.
Cyber Threat Incident Service (Module V)	A Cyber Threat Incident Centre collecting data feeds from incidents and related vulnerabilities and providing preventive actions to be taken according the existing systems in the CI.
Real-Time Anomaly Detection System (Module VI)	A system to detect unknown anomalies , with automatic learning abilities for RT anomaly detection of combined threats and attacks.



STOP-IT Interactions between water utilities, industry and R&D

STOP-IT IS STRUCTURED TO ENSURE CO-CREATION WITH THE WATER UTILITY PARTNERS.

STOP-IT builds on a FR and FL approach

- The FR operators are actively involved in most of the project activities:
 - contribute to the exploration and categorisation of risk events and risk management measures relevant for their water infrastructure
 - be engaged in the CoPs
 - support the adaptation and improvement of innovative solutions
 - be responsible for the demonstration of the STOP-IT platform and selected modules at their demo-site
- The FLs will
 - undertake training and knowledge transfer exercises with a focus on the experimentation, interactive learning and transferability and scalability of solutions provided by the project.
 - contribute to the definition of user requirements along dedicated events of the project CoPs
 - allow evaluating the market uptake and replication of STOP-IT outcomes.

To ensure project results exploitation and market uptake, STOP-IT includes a dedicated **Innovation and exploitation manager**, responsible for:

- Continuous analysis of STOP-IT Key Exploitable Results (KERs)
- Workshops with stakeholders (water-utilities & technology providers)
- Feedback opinion of stakeholders to project members to adapt KERs towards market-feedback
- Use experiences gained to update STOP-IT exploitation plan annually

STOP-IT Benefit from joining us!

Our communities of practice (CoP's)

STOP-IT has created Communities of Practice (CoPs) and learning alliances with a multi-stakeholder perspective to contribute to the development of the project products.

The local CoP's for the Frontrunner water utilities will deal with technical aspects to be treated in a confidential environment.

The project CoP is designed to establish a network of different groups of stakeholders on the project and is open to a broader audience (water utilities, national water associations, first aid associations, NGO's).

The trans-project CoP is crossing boundaries between different critical infrastructure sectors and involves international networks and non-project expert groups. Collaborations have been already established with relevant communities: the ICT4Water cluster (www.ict4water.eu), the "Community of Users on Secure, Safe and Resilient Societies" (CoU) (www.securityresearch-cou.eu/about) and the ERNCIP TG Water (<https://erncip-project.eu/en/purpose-and-networks/tpa/water>).
... **YOU all here today!**

STOP-IT CONCLUSION - Why is STOP-IT important?

- Water industry designed without security as a primary concern
- Technological advances put sector even more at risk
- Technological advances also requires new competence and training of personnel
- An attack could endanger public health and environment
- Upgrading to adequate security is a large task:
 - Time, money, manpower
 - Constant quality control

Digitalization of the water industry is the way ahead - it should not be "denied" because of security concerns → **STOP-IT contribute to the digital transition by enhancing preparedness, detection and mitigation.**

Also...

The water management in general should benefit from the advancement in sensing, but...
... collecting data is not enough, we need to use data in a useful way and water industry seems to be lagging behind... but this also means we can learn from other sector!
→ **STOP-IT brings together EU excellence in IT solutions and water domain to ensure water service tailored solutions!**

STOP-IT

TECHNOLOGY exists, but it is how we adopt it in the water sector in a secure and effective way that will make the process successful.

THANK YOU FOR YOUR ATTENTION

stop-it-project.eu

Project Twitter: https://twitter.com/STOPIT_Project

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