



STOP-IT

Deliverable 2.1 **Guidelines for CoP setup and animation**

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DELIVERABLE 2.1

D2.1: GUIDELINES FOR COP SETUP AND ANIMATION

SUMMARY

Deliverable 2.1 - Guidelines for CoP setup and animation - delivers the frame for Communities of Practice (CoP) within the STOP-IT project in order to provide creative space and room enabling a mutual learning process between Frontrunners and Followers, project partners, as well as external stakeholders. This report (i) helps to ensure a common understanding of the CoP-approach in the STOP-IT project, defining the CoP-design on three levels: local, project and trans-project in terms of community architecture, responsibilities, community spaces, confidentiality, actors and stakeholders etc.; (ii) shows how CoPs will be launched and developed through the different phases of the project and (iii) supports to set-up and maintain CoPs on local, project and trans-project level.

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List of Acronyms and Abbreviations

CI	Critical Infrastructure
CoP	Community of Practice
FL	Follower (referring to water utilities)
FR	Front-Runner (referring to water utilities)
KPI	Key Performance Indicator
MS	Milestone
NGO	Non-Governmental Organization
PAB	Project Advisory Board
SAB	Security Advisory Board
STC	Scientific and Technical Committee
WP	Work Package





Executive Summary

Water infrastructures are essential for human society, life and health and classified as critical infrastructures (CIs). These CIs can be endangered, disrupted or destroyed by events related to physical and cyber threats including, but not restricted to, deliberate attacks, with fatal consequences for society. Managing the risks from significant physical and cyber threat to CI requires an integrated risk management approach including the full spectrum of capabilities, expertise, and experience across the CI community and associated stakeholders. To address this, the project STOP-IT (“**S**trategic, **T**actical, **O**perational **P**rotection of water **I**nfrastructure against cyber-physical **T**hreats”) assembles a team of research and development experts, technology providers and water utilities in order to co-develop a risk management framework for the physical and cyber protection of water CIs. In this context, Communities of Practice (CoPs) will be established ensuring an effective participation, communication and learning mainly between the various stakeholders feeding into STOP-IT activities. CoPs will bring together relevant stakeholders and experts for given security issues, developing a common understanding of the advantages and disadvantages of various options for tackling different kinds of threats in order to arrive at solutions that are co-developed, supported, and finally accepted by all parties.

To provide prevention, detection, response and mitigation measures to handle or reduce risks, information about supply systems, technologies and vulnerabilities has to be transparent to several actors (i.e. project members and external stakeholders). As this information as well as mitigation strategies developed must be protected against abuse by unauthorized persons, a three level-approach of CoPs was adopted to provide community spaces taking into account and fulfilling confidential requirements: (i) local level (Front-Runner water utility), (ii) project level (learning across locations and work packages) and (iii) trans-project level (transferability of knowledge and solutions to and from the project via interaction with other project/networks relevant for STOP-IT).

This guideline provides the framework for the three-level CoP-approach that allows developing local protection and mitigation strategies, taking into account confidential requirements of participating institutions. This deliverable

- helps to ensure a common understanding of the CoP-approach in the STOP-IT project
- defines the CoP-design on local, project and trans-project level in terms of community architecture, responsibilities, community spaces, actors, stakeholders etc.
- shows how CoPs will be launched and developed through the different phases of the project
- supports to set-up and maintain CoPs on local, project and trans-project level



1 Introduction to this guideline

Water critical infrastructures (CIs) are essential for human society, life and health, and they can be endangered by physical/cyber threats with severe societal consequences. To address this, the project STOP-IT (“**S**trategic, **T**actical, **O**perational **P**rotection of water **I**nfrastructure against cyber-physical **T**hreats”) organizes Communities of Practice (CoP) for water systems protection. The CoPs will identify current and future risk landscapes and co-develop a risk management framework for the physical and cyber protection of water CIs. Prevention, detection, response and mitigation of relevant risks at strategic, tactical and operational levels of planning will be taken into account to generate modular solutions (technologies, tools and guidelines). STOP-IT solutions are developed and demonstrated by stimulating mutual learning, transfer and uptake between participating water utilities and project partners, but also by interacting with other international projects and research communities dealing with critical infrastructure (not only limited to water).

This document provides a guideline to support the understanding, set up and launch of Communities of Practice within the STOP-IT project. Outcomes from the WP2-Workshop “Communities of Practice: Understanding, acting, launching and maintaining” (27.09.2017) gave final inputs to this report. This guideline

- helps to ensure a common understanding of the CoP-approach in the STOP-IT project,
- shows how CoPs will be launched and developed through the different phases of the project
- defines the CoP-design on local, project and trans-project level in terms of community architecture, responsibilities, community spaces, actors etc.
- supports to set-up and maintain CoPs on local, project and trans-project level

Next to a general overview of the CoP-concept (chapter 2), the structure of CoPs within the STOP-IT approach (chapter 3) and the management of CoPs in terms of setting up, launching and maintaining is described (chapter 4).

For chapter 3 and chapter 4, information regarding CoP design and management was collected in fact sheets for each type of CoP, providing key facts (e.g. targets, responsibilities and stakeholders), further information such as CoP-format (kind of meeting and frequency) and steps to be carried out for set up, launch and maintenance of CoPs (chapter 4.3.1 - 4.3.3).

Feedback and Support

If you need support or have questions about CoPs, please feel free to ask our support team!

We would also love to hear from you about your experiences regarding launching and maintaining STOP-IT CoPs, omissions of material that you might need and other suggestions you might have!

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2 Communities of Practice (CoP) – a general overview

Communities of Practice (CoP) provide a useful perspective on knowing and learning. The concept was first introduced in 1991 by the cognitive anthropologist Jean Lave and the educational theorist Etienne Wenger in their book “Situated Learning. Legitimate Peripheral Participation” (Lave and Wenger, 1991). Communities of Practice are defined as follows

- ❖ **“Groups of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis”**
(Wenger et al., 2002).

Examples for CoP

Engineers who design a certain kind of electronic circuit and compare designs on a regular basis in order to improve the design as well as parents who share tips and insights about the subtle art of parenting during a soccer game of their children form CoPs.

In a CoP, three elements are fundamental: the domain, the community and the practice. To cultivate a CoP, the combination of the three must be developed in parallel (Wenger-Trayner, 2015):

1. **Domain:** A CoP distinguishes from other networks since its members identify themselves by a shared domain of interest. Membership involves a commitment to the domain and a shared competence.
2. **Community:** While showing their interest in their domain, community members share information, help each other and join activities and discussions. In this form of interaction, members build relationships in order to learn from each other and to support each other.
3. **Practice:** Members of a CoP do not only share a common interest, they are engaged in common practice, as an iterative social process, where they develop a shared repertoire of resources. These can be experiences, stories, tools or ways of addressing recurring problems. To develop this kind of a shared practice it takes time and continuous interaction.

A CoP can evolve naturally due to the members' common interest in a specific field, or it can be created deliberately with the goal of gaining knowledge related to a particular domain. When applied intentionally as a learning concept, the overall goal of a CoP is to maintain the already existing knowledge about a specific topic and use it to create new ideas through an ongoing exchange of information. Through the process of sharing information and experiences with the group, members learn from each other and have an opportunity to develop personally and professionally (Lave and Wenger, 1991).

By looking at the members' motivation to join a CoP, basic types of members can be characterized. Some people join because they care about the domain and want to see it developed. Others participate because they value to be part of a community and therefore are mainly looking to interact with people who share something important and who appreciate the contribution. The last group of members simply wants to learn about the practice. The community offers the opportunity to learn about already established standards but also about new techniques and approaches. These three forms of participation are oriented at the three main characteristics of a CoP: domain, community and practice (Wenger et al. 2002).



CoPs can be applied in different fields or institutions like (business) organizations, governments, associations, education, social sector, international development and web (Wenger-Trayner, 2015). Depending on where the CoP is applied the goal can vary. Organizations and community members benefit differently by the implementation of a CoP. Depending on a short-term and long-term view, the benefits to organizations as well as community members are listed in the table below:

Table 1: Benefits to institutions and community members (Wenger et al., 2002)

	Short-term value	Long-term value
	<i>Improve business outcomes</i>	<i>Develop organizational capabilities</i>
Benefits to institutions	<ul style="list-style-type: none"> • Arena for problem solving • Quick answers to questions • Reduced time and costs • Improved quality of decisions • More perspectives on problems • Coordination, standardization and synergies across stakeholders • Resources for implementing strategies • Strengthened quality assurance • Ability to take risk with backing of the community 	<ul style="list-style-type: none"> • Ability to execute a strategic plan • Authority with clients • Increased retention of talent • Capacity for knowledge-development projects • Forum for “benchmarking” against rest of industry • Knowledge-based alliances • Emergence of unplanned capabilities • Capacity to develop new strategic options • Ability to foresee technological developments • Ability to take advantage of emerging market opportunities
	<i>Improve experience of work</i>	<i>Foster professional development</i>
Benefits to community members	<ul style="list-style-type: none"> • Help with challenges • Access to expertise • Better able to contribute to team • Confidence in one’s approach to problems • Fun of being with colleagues • More meaningful participation • Sense of belonging 	<ul style="list-style-type: none"> • Forum for expanding skills and expertise • Network for keeping abreast of a field • Enhanced professional reputation • Increased marketability and employability • Strong sense of professional identity

CoPs can exist in physical settings, for example, a lunch room at work, a field setting, a factory floor, or virtual settings which means members of CoPs do not have to be co-located. They form a virtual community of practice (Dubé, Bourhis, & Jacob 2005) when they collaborate online, such as within discussion boards and newsgroups, or a mobile community of practice (Kietzmann, et al. 2013) when members communicate via mobile phones and participate in community work on the go. CoPs can be found in everyday life and in work life, can take many forms and may vary in terms of size (small or big), duration (short-lived or long-lived), location (co-located or distributed) etc.



3 CoP-approach of the STOP-IT Project

Within the STOP-IT project, Communities of Practice are aiming at facilitating and organizing communication and learning mainly between water specialists, but also with national water associations, policy makers, first responders, non-governmental organizations and other interested parties, as well as with experts from other research communities, international networks and initiatives relevant to the project. CoPs are bringing together relevant actors and experts to address given (security) issues and develop a common understanding of the advantages and disadvantages of various options for tackling different kinds of threats. The CoPs will have to be active, lively, useful and effective, which means that the CoP environment and activities need to generate social presence and motivation and collaboration among the members. The main objectives of STOP-IT CoPs are to

1. promote a multi-stakeholder approach to water system protection by stimulating and facilitating networking and co-learning according to defined levels of communication security,
2. bring together water professionals with common specialisations, interests, responsibilities and/or problems to interact as CoPs (both on online platforms and in person) with the goal of sharing and co-producing knowledge on how to handle (different kinds of) threats to water infrastructure,
3. establish an organized structure for communication not only related to the project partners, but also open to mutual learning from and with other communities.
4. bridge boundaries and support the development of a broad and lasting learning alliance for best practice in water infrastructure protection.

STOP-IT is dealing with cyber and physical threats to drinking water infrastructure. To provide prevention, detection, response and mitigation measures to handle or reduce relevant risks, information about supply systems and vulnerabilities has to be exchanged between several actors. As this information as well as strategies developed must be protected against abuse by unauthorized persons, it was decided to create a three level-approach for CoPs within the STOP-IT project (see Figure 1), dealing with different levels of confidentiality: local, project and trans-project CoP.

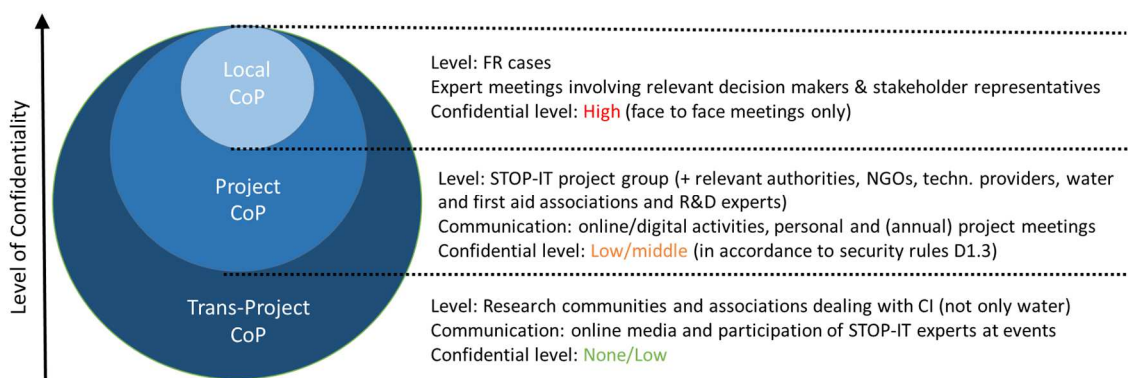


Figure 1: Overview of the three-level CoP-approach (local, project and trans-project) within the STOP-IT project with regard to the level of confidentiality

Communication within and between the CoPs will depend on the CoP-level (i.e. local, project or trans,-project) and the matter of content and corresponding levels of confidentiality (see also chapter 3.1 - 3.3). Data protection and security has to be ensured according to Deliverable D10.2 and D1.3. The envisaged interactions and relation between the CoPs and project outcomes are shown in Figure 2.

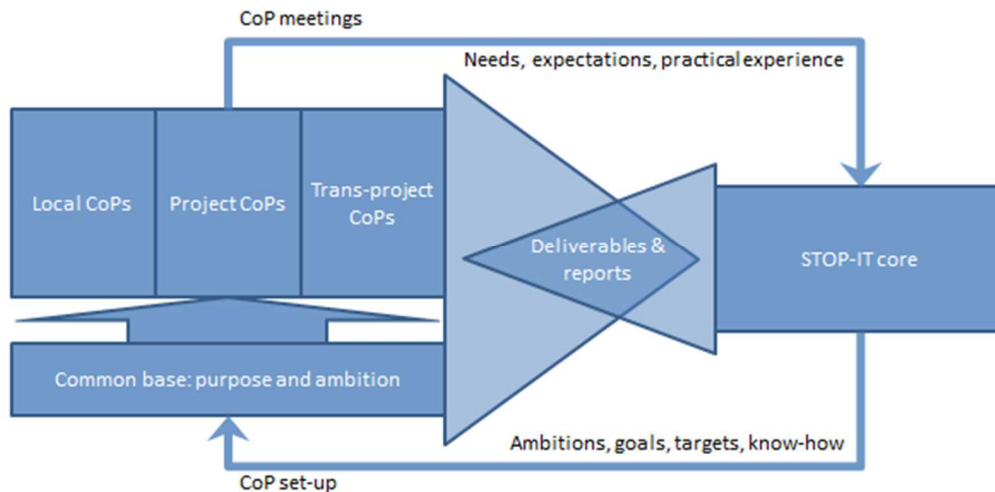


Figure 2: Envisaged interaction between the CoPs and STOP-IT

CoPs will provide space for knowledge exchange and mutual learning between the various stakeholders feeding expertise and practical experiences to the project. Stakeholders’ needs and expectations will be taken into account whereas knowhow derived from the project can be fed into the CoPs.

3.1 Local CoP

The **local CoPs** will be set up by the Front-Runner utility, corresponding Research Institute and associated Follower organizations in each of the pilot countries in the project: Norway, Germany, Spain and Israel (Table 2).

Table 2: STOP-IT Communities of Practice Core Teams

Front-Runner Utility	Research Institute	Follower Utility	Country
Oslo VAV	SINTEF	Bergen Kommune	Norway
Berliner Wasserbetriebe	IWW	Hessenwasser	Germany
Aigues De Barcelona	CETAQUA	EMASAGRA	Spain
Mekorot	Technion	-	Israel
-	KWR	De Watergroep	Belgium

Located at the FR cases (see Figure 3), the local CoPs will practice expert meetings at highest confidentiality level with involvement of relevant decision makers and stakeholder representatives. Local CoP targets are:

1. bringing together selected stakeholders for each of the Front-Runner cases with regard to specific threats to be handled



2. sharing required information and technical inputs to handle specific physical or cyber threats
3. to develop/generate novel solutions/integrated concepts based on mature technologies improved via their combination and/or embedment of novel technologies

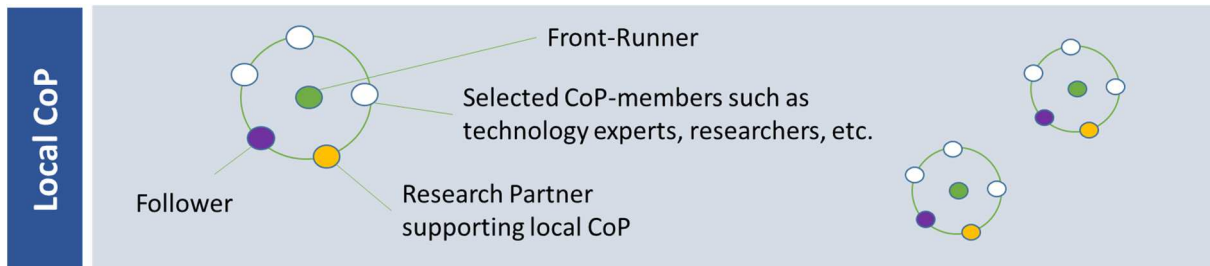


Figure 3: Overview of local CoP

In addition to the core group (consisting of members from Front-Runner, corresponding research Institute and Follower utility) the following stakeholders might be involved: e. g. internal stakeholders from Front-Runner and/or Follower utilities, R&D experts, relevant authorities, national water or security associations, first aid associations, NGOs and technology providers.

3.2 Project CoP

The **Project CoPs** are designed to exchange experiences on the applicable outcomes of STOP-IT with project partners by promoting a multi-stakeholder approach to water system protection. Information exchanged between project partners shall be on an aggregated level. The project CoPs targets are:

- active networking and knowledge sharing between different stakeholders to facilitate interactions between researchers and non-researchers
- to facilitate replication, knowledge transfer and lessons learned from the Front-Runner cases (e. g. suggestions for development of training material, user requirements and courses), also as a starting point for WP8
- to define transferrable innovative solutions/products for STOP-IT dissemination activities

Project CoPs will be launched on various levels (Figure 4) such as on Task- and Work Package (WP) level, within the Scientific Technical Committee (STC), Project Advisory Board (PAB) and as a Water Utility group of STOP-IT operators.

Project CoPs will bring together different stakeholders: water utility operators (Front-Runners and Followers), technology providers but also other stakeholders such as relevant authorities, national water associations, first aid associations, NGOs and R&D experts. Communication will take place in face to face meetings or workshops (such as WP-meetings or annual project meetings) but also in virtual meetings or phone conferences. Data or information can be exchanged via cloud technology provided by WP9 (channels on WP-level) or via mail (mailing list or individual mail), following security protocols agreed upon with all partners.

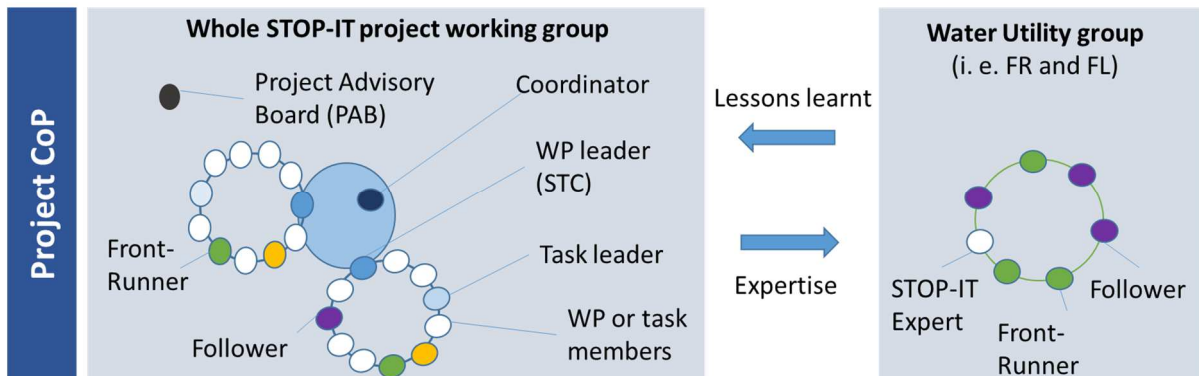


Figure 4: Overview of project CoP on a) whole project level and b) water utility level

3.3 Trans-Project CoP

The **Trans-project CoP** creates space for knowledge transfer and exchange of experiences between the STOP-IT project and i) other relevant target groups, research communities or associations dealing with protection of critical infrastructure - not limited to water - and ii) international networks (see Figure 5). Information exchanged is on a low level of confidentiality to achieve the following targets:

- to establish interaction with other international networks, initiatives/projects or research communities dealing with critical infrastructure, enabling knowledge exchange and methodological exchange
- to encourage dialogue for the pre-establishment of certification mechanisms by facilitating the debate and expert elicitation and consultation across borders between different CIs

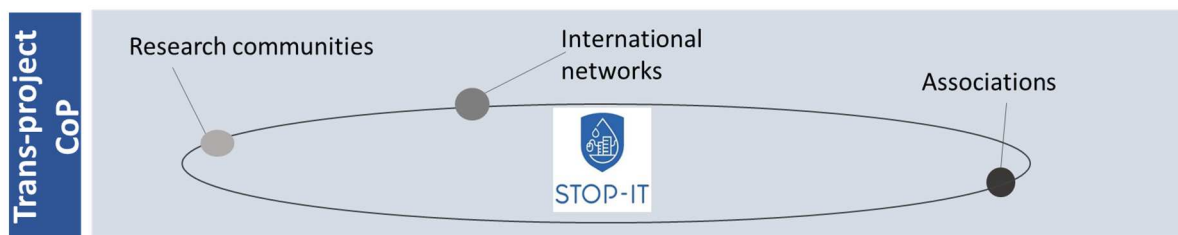


Figure 5: Overview of trans-project CoP

The communication within the trans-project CoP will be organised via online media (information via newsletter, homepage, social media and cloud technology) and participation of STOP-IT's experts at events, conferences, exhibitions or open session from other research associations, such as ICT4water. With regard to data and information security, data and information exchange via online media will be in a very low level of detail enhancing active networking and public relations.



3.4 STOP-IT CoP-Resources and Infrastructures

In order to support the communities of practice and to enable members to apply and exchange their expertise effectively, the following resources and infrastructures are provided within STOP-IT (see table Table 3).

Table 3: STOP-IT resources and infrastructures enabling a lively and continuous exchange of expertise per type of CoP

Resources/ Infrastructures	Available / Recommended resources / infrastructures at CoP-level		
	Local	Project	Trans-project
Resources (time and personnel)	Preparation, participation and reporting of local workshops <i>(FR and FL with support from research institutes)</i>	Preparation, participation and reporting of task-leaders, WP- or project meetings, STC-meetings etc. <i>(whole consortium)</i>	Participation at conferences, workshops and events. Exchange with other research communities <i>(Coordinator, selected experts from STOP-IT project)</i>
IT-structure for information exchange	Cloud technology, i.e. WP2-dataroom providing auxiliary material such as templates, timetable etc. <i>(provided by PNO)</i>	Cloud technology for information exchange on several channels such as WP-level or STC-level <i>(provided by PNO)</i>	Announcements, news, ongoing activities via 1. STOP-IT Homepage <i>(provided by IWW)</i> 2. Cloud technology, i.e. public CoP data room <i>(provided by PNO)</i>
Coordination & Support team (WP2)	1. Guidance on launching the CoP in terms of what to do by whom, when and how to do it <i>(KWR, SINTEF & IWW)</i> 2. Central coordination of local workshops (T2.2) providing timeline and frame of workshops <i>(KWR)</i>	Support on launching and maintaining the CoP <i>(KWR, SINTEF & IWW)</i>	Support on launching and maintaining the CoP <i>(KWR, SINTEF & IWW)</i>

4 CoP-Management within the STOP-IT project

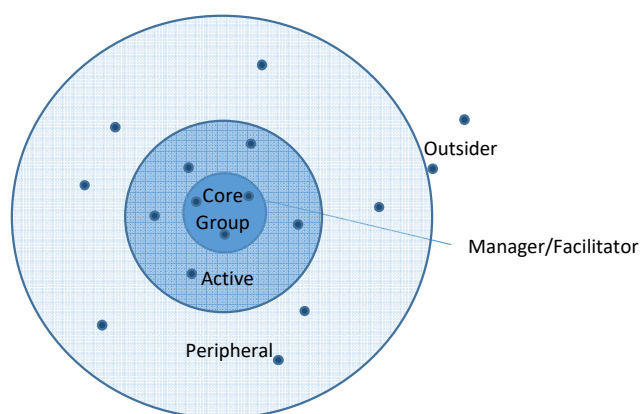
This chapter describes the management of CoPs within the STOP-IT project. In general, the following seven principles for cultivating CoPs are generally be applied within the management approach (Wenger et al., 2002):

1. Design for evolution
2. Open a dialogue between inside and outside perspectives
3. Invite different levels of participation
4. Develop both public and private community spaces
5. Focus on value
6. Combine familiarity and excitement
7. Create a rhythm for the community

1. **Design for Evolution:** Usually, CoPs are organic and dynamic. Therefore, design elements should be catalysts for a community's natural evolution. Since CoPs usually build on preexisting personal networks it is the CoP manager's task to help the community develop and grow through physical, social and organizational structures.

2. **Open a Dialogue between Inside and Outside Perspectives:** Insiders of a community usually have knowledge about the members, their relationships, their repertoire, their potential in emerging ideas and techniques and the challenges their fields face. In order to realize the community's potential it might be helpful to take an outside perspective and help members see the possibilities. In the STOP-IT project, information is brought in through the project partners to the community for dialogue about what the community could achieve. This means ensuring that the community manager and core members as designers of the community are in constant dialogue with the STOP-IT project.

3. **Invite Different Levels of Participation:** CoPs consist of three main levels of community participation: the core group, the active group and the peripheral group (see also Figure 6).



The *core group* (usually 10 to max. 15 percent of all members) is the heart of the community, actively participating in discussions, taking on community projects, identifying topics for the community and moving the community along its learning agenda. This group takes on much of the community's leadership and becomes auxiliary to the coordinator.

Figure 6: Degrees of community participation

The level outside the core group is called the *active group*. It is also rather small and consists of 15 to 20 percent of the whole community. The active group members attend meetings regularly and participate occasionally in the community forums.



The biggest group build the members of the *peripheral level*. They rarely participate. Instead they remain peripheral and watch the interaction of the core and active members. Even though they seem to be passive their peripheral activities are an essential dimension of CoPs. Hence, make sure that the active group is consisting of a broad number of stakeholders.

4. Develop Both Public and Private Community Spaces: Public community spaces are open to all community members and mostly closed to outside people. During these events, participants can tangibly experience being part of the community, see who else participates and appreciate the level of sophistication the community brings to a technical discussion. Next to these public events, private relationships evolve a CoP enormously. The heart of a community is the web of relationships among community members where much of the day-to-day occurs in one-on-one exchanges. Therefore, a community coordinator needs to create a space for public and private meetings.

5. Focus on Value: Value is the key and main driver to community life because participation in most CoPs is voluntary, as it is in STOP-IT. A particular element of designing this value is to encourage community members to be explicit about the value of the community throughout its lifetime. This is important since the full value of a community is often not apparent in the beginning and develops over the lifetime. Discussions about the value greatly help to understand the real impact of the community and helps to avoid growing disinterests.

6. Combine Familiarity and Excitement: Successful communities offer the familiar comforts of a hometown but they also have enough interesting and varied events to keep new ideas and new people cycling into the community. On the one hand, patterns of regular meetings, telephone conferences and use of the website provide familiarity and create a comfort level that invites open discussions. On the other hand, events outside of everyday work like challenging conferences or workshops, create space for excitement and therefore supply divergent thinking and activity.

7. Create a Rhythm for the Community: Like our everyday lives or businesses have a rhythm, it is also important for communities to have a rhythm in order to stay alive. The frequency of the members' interactions is greatly influenced by the rhythm of community events which beat should neither be too fast nor too slow. Therefore, finding the right activity intervals at each stage is a key factor to a successful community's development and can differ widely.

Within STOP-IT, the overall approach for setting up and maintaining the CoPs is structured along a number of elements:

1. Set-up and launch:
 - Planning the community
 - Design the operating practice
 - Launching the CoP
2. Support and manage:
 - Facilitate the CoP meetings
 - Monitor outcomes



Figure 7 shows a support diagram containing the different elements of CoP set-up and management and examples of questions that should be considered when designing the CoP, as well as while the CoP is running. The different elements are presented in detail below.

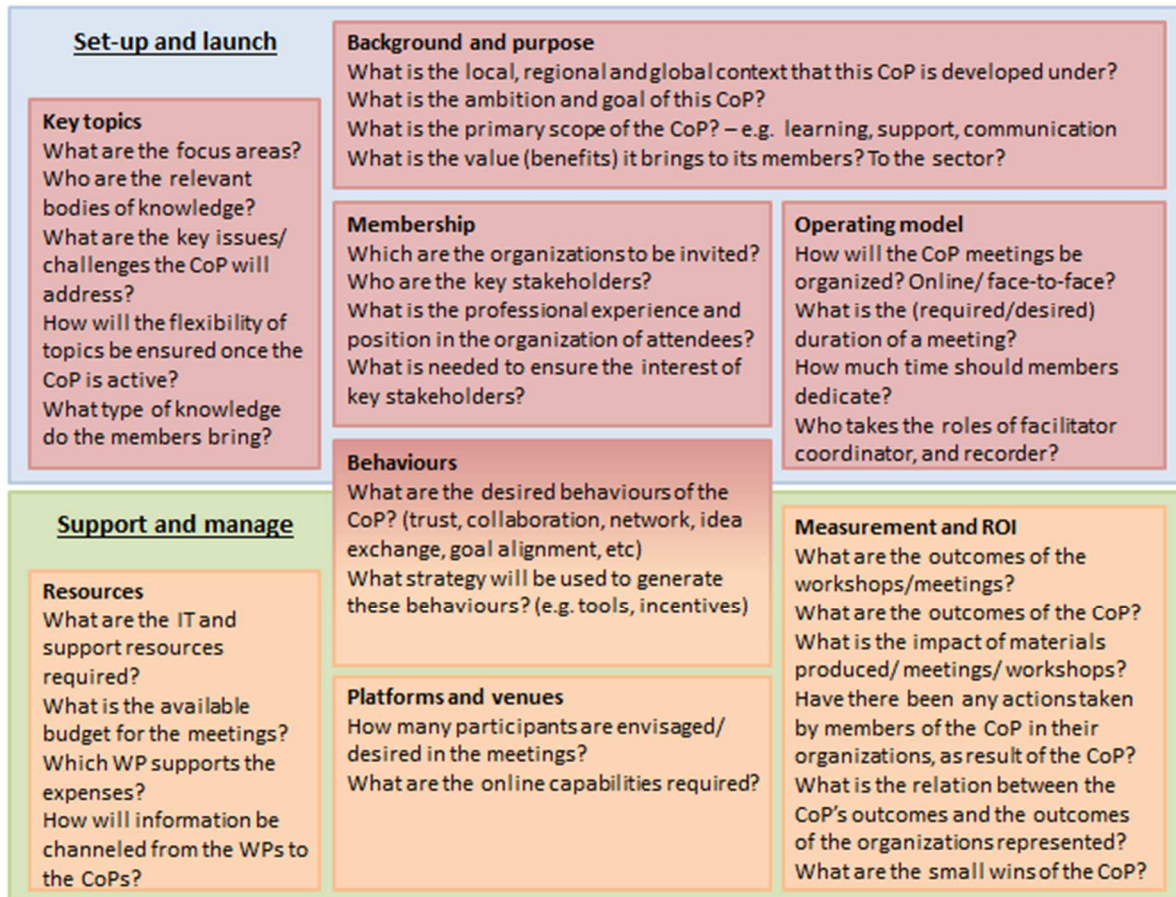


Figure 7: Support diagram for CoP set-up, launch, manage and support; adapted from the World Bank Group, 2017, p. 20

Management of the CoP includes all activities, carried out locally by the core team, to enable the functioning of the CoP. These include:

- Setting up venues for meetings;
- Delegating responsibilities to CoP members;
- Engaging with CoP members between official meetings;
- Setting up agendas for the meetings and ensuring that minutes are taken;
- Facilitating the meetings and workshops.



4.1 Set up and launching the CoPs

4.1.1 Planning the community

An important role in setting up and running the CoPs is given to *the manager*¹ (*coordinator*) who is responsible for managing the CoP. It is advised that the CoP manager remains the same person throughout the entire existence of the CoP. The aspects to consider when choosing the CoP managers are:

- Familiarity with the STOP-IT project
- Knowledge of the cyber security issues
- Extensive network of contacts, familiarity with the potential members of the CoP, both organizationally and individually
- Ability to formulate agendas and plan of action for the CoP meetings based on STOP-IT ambitions, in cooperation with the facilitators of the CoP meetings
- Moderation skills: flexibility in communication with stakeholders, as well as in reiterating the ambition and scopes of the CoP based on findings revealed in the CoP meetings

Table 4: CoP manager within the STOP-IT project on local, project and trans-project level

Local CoP	Project CoP	Trans-project CoP
The local CoP manager (originated from FR utility) is supported by a facilitator ² from the corresponding research institute as “independent expert” (see also Table 2 and chapter 4.2)	Project CoPs are under leadership (= CoP manager and facilitator) of the task- or WP- leader or coordinator, depending on the level the CoP is launched (i. e. task- or WP- or project-level, within STC, SAB or PAB or within water utility group, consisting of FR and FL)	Trans-project CoP is under leadership of STOP-IT Coordinator (= CoP manager) in collaboration with selected STOP-IT experts (facilitators).

Starting a CoP requires that the overall ambitions³ are set. Based on these ambitions the *relevant* stakeholders will be invited to become a member of the CoP. Importantly, these members should then agree on the common goals⁴ and shared values of their CoP and the domain (key topics) to address. As CoPs are designed to be flexible, the scopes⁵ and goals may adapt over the duration of the project due to the needs identified in the communities created whereas the outcomes⁶ of the CoPs will respond to the changes in scopes and goals, by adapting to accommodate the community and end-user requirements.

Stakeholder identification

- Initiation of contacts
- Identify relevant actors
- Contact relevant persons and institutions checking their interests, responsibilities, motivation and availability
- Motivate actors to participate in the CoP
- Documentation of contact details

¹ CoP manager – helps the community to focus on its domain, maintain relationships and develop its practice

² Facilitator – helps to create an outcome by providing assistance, guidance or supervision

³ Ambition – the overall target set to be achieved; e.g. have 25% of identified stakeholders active in the CoP

⁴ Goal – the object of the ambition; e.g. implement secure IT protocols for water infrastructure

⁵ Scope – specific actions relating to the CoP; e.g. learn and communicate about best available practices

⁶ Outcome – key performance indicator; e.g. three stakeholders implement a new platform for IT security



Elevator Pitch

You should be able to transform the initial idea you have about the community into a short description as an “elevator pitch”, no longer than a couple of sentences, which you would tell a potential member if you met her/him in an elevator. Develop a “**WOW - HOW - NOW**” approach:

- WOW – think of a “WOW” opening that will get their attention.
- HOW – explain briefly how your community addresses a need or solves a problem, give example(s)
- NOW – what sort of action you or they can take now

The CoP call for action should define a common ambition and envisaged overall goal of the CoP, as an “elevator pitch” which can be used by any of the members to describe the CoP they are part of. Initially, this is determined by the core groups, based on the STOP-IT ambitions, prior to the first workshop.

The core groups, coordinated by the CoP managers, are responsible for mapping all the potential stakeholders involved prior to organizing the first CoP meeting – starting at organization level and zooming in to individual level. The CoP members will be invited to join the CoP based on stakeholder networks and relationships, considering (but not limited by) the potential member characteristics:

- Relationship of organization with other stakeholders
- Known habits of the organization in the IT environment
- Relation of the organization to the water sector and the STOP-IT project
- Hierarchical position of invited person within the organization represented
- Known enthusiasm and knowledge of invited person with regards to the CoP mission

As a result of the first workshop, the ambition and desired goals are refined together with the members of the CoP, to ensure that these are in line with members’ expectations. The work of negotiating a shared objective is critical to community development. Questions that have to be answered by the community are: What are the main challenges we face? What is the desired outcome of the CoP? What topics and issues do we really care about? The answers to these questions will help a community to develop a shared understanding of its objective, find its legitimacy in the organization and engage the passion of its members. In Annex 1 a CoP Group Interview Template (part A) is provided. This can be a useful aid when discussing the common objective with the CoP members.

The short and long-term value for both organizations and attending members will also be determined as result of the first workshop, in connection to the identified needs and desired outcomes for the CoP. Typical short term value can be quick answers to questions and access to expertise while long term value can be capacity building for knowledge-development projects, knowledge-based alliances and enhanced professional reputation. The determined value of the CoP will be used further to continuously engage the stakeholders, and will serve as an ethos for the community. Examples of short and long-term values are shown in Table 1. In Annex 1, part D, a Value Matrix Template is provided that can be used to identify shared values of the CoP.

4.1.2 Designing the operating practice

Within CoPs, conditions have to be created to facilitate knowledge exchange. The CoP has to agree on specific ways to operate and to build relationships. Activities that generate energy



and develop trust need to be organized. The CoP Group Interview template (part B) in Annex 1 can be used to find the CoPs specific way to operate and build relationships.

Design the operating practice

- Engage by setting actions in the end of a meeting
- Keep in constant contact with stakeholders, build relationships
- Consider that actions are taken between meetings
- Challenge your members to think outside the box
- Establish friendly relations

Please note: Templates providing key questions on operating practice and knowledge system are given in Annex 1B & C.

To capture and exchange the (mostly tacit) knowledge that is shared in the STOP-IT CoPs, a *knowledge management model* is proposed. This model is only presented as a generic guideline, which can be adjusted to local circumstances and requirements. Part C of the Group Interview template of Annex 1 provides specific questions for the design of an effective knowledge system. STOP-IT aims to go beyond informing and rather use the CoPs for active consultation and collaboration with stakeholders. Thus, the proposed knowledge management model is based on social learning and open dialogue whereas individuals collectively develop new knowledge by making use of the diversity of perspectives and understandings at hand.

To engage CoP-members in an open dialogue, the following principles can be applied (Medema et al., 2014):

- listening and speaking without judgement
- identification of underlying assumptions
- acknowledgement and respect for all contributions and ideas
- recognition of differences in perspectives and positions
- flexibility towards discussion topics

WIN-WIN-Principles

- Listen to others
- Understand others
- Respect all ideas
- Recognize opinions
- Keep flexible in thinking

CoP sessions should be designed in such way that participants are willing to collaborate and learn together. To create such conditions aimed at social learning, Medema et al. (2014) emphasize the importance of building trust and mutual understanding, facilitating ongoing reflection by embracing an intentional learning approach, and creating an enabling environment for informal and open discourse and dialogue.

Transparency needs to be maximised so that the different stakeholders can take advantage of their differences and mutual dependence. The size of the learning group allows continuous feedback and the subject matter must be as concrete as possible. Those involved should be stimulated to think in systems and to critically analyse their own norms, values, and assumptions explicitly. The facilitator should support creativity, critical reflection and thinking outside the box. The role of the facilitator is further described in Chapter 4.2.

4.1.3 Launching the CoP

At the launch of the CoP, a Community Charter can be agreed upon. All elements as listed in the support diagram (Figure 7), such as objectives, roles of members, knowledge management, a provisional CoP calendar of events, communication channels etc. define the Community Charter. The elements can be addressed based on the CoP Group Interview



(Annex 1) and conversations with the core group members. As such, this charter is the outcome of the design process.

4.2 Supporting the CoPs

Facilitate CoP meetings

The CoP meetings have to be organized: arrange venue and facilities, prepare an agenda, invite the members, etc. As the STOP-IT CoPs will have face-to-face meetings, suitable venues need to be chosen that match the resources needed (e.g. IT) and available (e.g. budget). Keep in mind: Stakeholders are spending their time – make this time as comfortable as possible and provide a fruitful atmosphere with some snacks and soft drinks if appropriate.

At the meetings, the *role of the facilitator* will be essential to apply the knowledge management model. The facilitator should be an ‘independent expert’, who is given the authority to lead, imposing clear rules and roles with the aim of generating an environment of trust and acting as a ‘neutral’ mirror when necessary. For local CoPs, the facilitator will be designated from the related research institute (see Table 2). Project CoPs are under leadership of the task- or WP- leader or coordinator, who is taking the role of community manager and facilitator as well. For trans-project CoPs, the CoP manager, i.e. the project coordinator, will select STOP-IT experts as facilitators.

The Role of Facilitator

Facilitators will be the bridge between the STOP-IT project and the CoP, taking an advisory and/or active role in launching the CoP and conduction of its major meetings, helping to ensure that key elements and forms of interaction are developing as intended.

The main tasks of the facilitator in the CoPs are to provide structure to and create a conducive environment for the learning process. Regarding the structure, the facilitator has to help define common work goals and clarify working methods. The conducive environment for learning should ensure that values and assumptions can be discussed amongst the participants.

An open dialogue requires that participants are willing to discuss their diverging views and norms as equals. The facilitator's task is to explicate such differences (and avoid that these are concealed), as this is an important element of shared learning and a collaborative response. The facilitator can guide this process by diverting from defensive reasoning and advocating appreciative inquiry. An appreciative approach can be facilitated by reframing problems to a focus on strengths and successes, e.g. by asking participants to identify what might work well and could contribute to the challenge discussed. Likewise, the participants can be asked to question the validity of the existing situations and underlying principles and use this for the identification of potential alternatives.

Thus, the facilitator of a CoP should encourage the participants to articulate the reasoning and meaning underlying their thinking. This is done by stimulating self-generated explanations, self-evaluation, reflection and interaction between participants. Moreover, the facilitator can model constructive behaviour by thinking and reflecting aloud and summarising progress. A suitable methodology, both for the facilitator and in group assignments, is



listening, summarising & elaborating (further questioning). It is advised that the facilitator remains the same person throughout the entire lifespan of the CoP.

Monitor outcomes (success measurement)

In order to ensure that the CoP meetings bring value, both for individuals attending and the organizations they represent, success measurement is defined as the collection and display of outcomes deriving from the CoPs. Therefore, a system of qualitative measurement of the outputs⁷ and outcomes of the CoP is set in place, as well as reporting on the value of the outcomes for the CoP members. Failure to identify and communicate the outcomes and their value to members might result in lower interest and attendance rates throughout the CoP's lifetime. On the other hand, defining and emphasizing outcomes and their value to members increases the pride and sense of achievement of members, and most likely results in continued support of the CoP. Outcomes are a series of impacts a community creates on improving various aspects of the day to day work of the CoP members – projects, operations, decision making, dealing with challenges, improving efficiencies or preparing for the unknown. Aligning the outcomes with the expected values determined by participants ensures that steps are taken by the CoP manager and facilitator towards effective use of participants' time, knowledge and trust.

While CoPs are designed to last for years and tackle particular challenges brought up by their members, it is also important to look at the short term. Outcomes are typically determining the long term value, while short term value is brought to its members by “small wins” achievable in a short time. These small wins have the benefit of adding enthusiasm to the CoP members, and help them see the immediate value that the CoP participation brings. A small win for example can be the increased awareness about a topic that participants had limited knowledge of, and thus encouraging them to learn more about the topic and bring new questions to the CoP. Small wins as well as outcomes should be determined and specified by the facilitator and CoP coordinator to the members, as they ensure awareness.

While CoP meetings are known to be engaging and energizing for the members, it is important to be aware that the actions that members take towards outcomes are carried out between meetings. Over time, the enthusiasm of the members to act on specific activities may be lost due to professional responsibilities that are prioritized over the CoP. As the meetings can be set months apart, the CoP coordinators, with support from the facilitators, should aim to engage the CoP members in these activities and maintain a constant contact with them. Specific activities can be set at the end of the meetings for the members to act on in the period before the next CoP meeting. The activities have both the role of channeling lessons learned from the CoP in the day to day operations of members and to keep them engaged.

A way of measuring the outcomes of the CoP is defined by Wenger and Snyder (2000) as systematic anecdotal evidence. As there is no realistic way to quantitatively measure a community's outcomes, systematic anecdotal evidence captures elements from the CoP

⁷ Output - Immediate results of meetings; e.g. reports, meeting minutes, attendees lists, action plans, roadmaps



members’ stories that connect community activities and their outputs with outcomes. While a story is insufficient to prove the value of a community to its members, anecdotal evidence should be collected in a systematic way: on regular basis and covering the entire spectrum of members and their activities. Any quantitative measures should be added, such as “increase of efficiency by x%” or “improvement of operations leading to y% increase in customer satisfaction”. However, it is important to acknowledge the fact that the success or failure of an activity is not only the result of actions taken as result of participating in the CoP, but should be seen as an effect of multiple factors, including the activities generated from the CoP. It is therefore required that the CoP meeting agendas always include a slot for participants to share their stories and capture these as part of the CoP reports or minutes. Importantly, the anecdotal evidence collected should capture both successes and failures, as the latter provides a basis to discuss and improve the actions CoP members take.

Minutes and reports of meetings will be generated following each of the CoP meetings. A meeting recorder is agreed upon – this is a person designated to collect minutes of the meetings and ensures the discussions are summarized. Any reports generated from the meetings, as well as the minutes, are to be agreed upon with members of the CoP following the meetings in order to ensure that the level of confidentiality required is maintained. The reports and minutes form a crucial building block for the work carried out in the STOP-IT work packages and therefore is of high importance to the entire consortium.

The meeting topics will be decided by the CoP managers in collaboration with WP- or task leaders and support from WP2 as part of the preparatory work for the meetings. Table 5 shows an example of a provisional workshop plan for the local communities of practice based on the work packages and tasks described in the STOP-IT proposal. For local CoPs, the topics and schedule will be set-up on a minimum of six months basis, depending on the requirements of the STOP-IT members, work packages and task leaders.

Table 5: Examples of Local CoP meetings topics and schedule

Workshop no.	Type	Project month	Topic
WS1	LCoP	M6-7	Characterization of critical infrastructure, existing risk reduction measures, current situation of existing laws, risk criteria, risk management plan and definition of time frame to develop risk assessment steps and end-user requirements
WS2	LCoP	M11-12	Assessment of system KPIs, scenarios, models used, requirements
WS3	LCoP	M18-19	Risk reduction measures
WS4	LCoP	M29-30	Results – Cyber-Threats Incident Service
WS5	LCoP	M38-39	Prototype demo
WS6	LCoP	M46-47	Legacy of STOP-IT


4.3 Summary of key facts / characterization of local, project and trans-project CoPs

Summarizing the overall CoP-concept (chapter 3) and management (chapter 4) within the STOP-IT project, relevant information was assembled in a fact sheet for each type of CoP.



Next to the general understanding of local, project and trans-project CoPs (e.g. targets, responsibilities and stakeholders) further information such as CoP-format (kind of meeting and frequency), data exchange (level of confidence, channels) and steps to be carried out for setting up, launching and maintaining the local CoPs are assembled.

4.3.1 Summary of key facts / characterization of local CoPs


Key aspects	Local CoP	Level of Confidentiality: HIGH
Timeline	Start: M4 Duration: end of project	
Targets	<ul style="list-style-type: none"> • Identification and involvement of relevant actors for FR cases • Collaboration and knowledge exchange among involved stakeholders • Provision of (technical) inputs (such as WP3 esp. T3.1 - and T6.1, T7.1 7.2) 	
Responsibilities	<p><i>The core group for local CoPs consists of members from FR utility, corresponding Research Institute and FL utility under the leadership of the CoP manager.</i></p> <ul style="list-style-type: none"> • The <i>CoP manager</i> is designated from the FR utility and is responsible for the local CoP, helping the community to focus on its domain, maintain relationships and develop its practice. • The <i>CoP facilitator</i> is designated from the related Research Institute and supports the CoP manager. The facilitator should be an 'independent expert', who is given the authority to lead, to impose clear rules and roles, and can generate an environment of trust. • The <i>recorder</i> is designated from the related Research Institute and is the person taking the minutes, elaborating the reports, ensuring the level of confidentiality required is maintained, and circulating these within the CoP members and the STOP-IT consortium (after approval from CoP manager). • Support is given from WP2 (i.e. templates, guidance, supervision) 	
Participants	<p>Stakeholders (depend on different subjects of consideration, e.g.):</p> <ul style="list-style-type: none"> • Core group: Local water utility (FR), corresponding follower utility (FL) and research partner • Possibly: internal stakeholders from FR and/or FL utility, representatives of local administration, government, regional planning departments, policy makers, (external) researchers, NGOs, representatives from companies, experts with regard to the subject discussed, others <p>Estimated Group size (core team plus actors): 5-15 participants</p>	
Community spaces	<ul style="list-style-type: none"> • Face to face meetings/workshops in a closed working group • According to security rules (see also "Confidentiality") set by each CoP manager eventually: <ul style="list-style-type: none"> ○ Virtual meetings ○ Virtual Communication&Innovation Platform (PNO), with specific datarooms for each CoP 	
Confidentiality	<ul style="list-style-type: none"> • Protection and security of personal data and confidential information has to be ensured according to D10.2 and D1.3 • Terms of confidentiality can be specified by CoP manager (non-disclosure agreement, house rules, etc.) 	
Information/ Data exchange	<p>Kind of data/information exchanged:</p> <ul style="list-style-type: none"> • Open dialogue • Local CoP manager decides on whether and which data is allowed to exchange <p>Channels for data/information exchange</p> <ul style="list-style-type: none"> • Cloud technology: WP2-data room to provide guidelines, timeline etc. for local workshops (only informal character, without any confidential or sensitive data) • E-room or Email: Exchange of data? (according to security rules set by each CoP manager, see also "Confidentiality") <p> <i>Please note: data protection and security has to be ensured according to agreed security standards, see also "Confidentiality"</i></p>	
Input/Output	<p>Provision of input/information to achieve a common base for workshops discussion from corresponding WPs (provided by task or WP-leader) according to workshops focus.</p> <p>Define the output/outcome of each workshop (such as kind of information and format) and the CoP in general (such as strategies to reduce/mitigate risks)</p>	



Key aspects	Local CoP	Level of Confidentiality: HIGH
Set-up, launching and maintaining	<p>Preparatory steps</p> <ul style="list-style-type: none"> • Front-Runner utilities assigns CoP managers (coordinators) • (Corresponding) Research partners assign CoP facilitators and recorders • WP2 offers training to manager, facilitator and recorders • CoP managers together with corresponding core group set ambition and goals of the CoP, definition (and adjustment within the local workshops) of common ambition and goals, operating practice, knowledge system, facilitator, meetings and outcomes • CoP managers together with corresponding core group map stakeholders. This activity is performed before each CoP meeting is organized • The agenda for the meeting is set before the invitations are sent • Invitations are sent to relevant stakeholders. Reminders also if low participation is foreseen • Venues and organizational details are set • Templates for the meetings are made available by WP2 as needed <p>Preparation and postprocessing of meetings/workshops</p> <ul style="list-style-type: none"> • CoP facilitators and managers discuss and bring the agenda to the attention of the participants, note changes to it, and inform everyone about the confidentiality and rules of the meetings • CoP managers can take an active role in the meetings, supporting the facilitator by answering first or asking questions if participants are not active • Meetings should use and manifest the behaviours and advice provided in this guide as well as any training sessions offered by WP2, to ensure fruitful discussions • Meeting minutes are taken with special consideration of confidential information. Where unclear, the recorder may ask if the information should be off the record, minutes are completed by the facilitator and CoP manager and circulated with participants • The minutes and any relevant information are made available to the STOP-IT project for incorporation in partners' work <p>Maintaining of CoP</p> <ul style="list-style-type: none"> • Frequency of meetings according to timetable (STOP-IT WP2 data room) • Information about ongoing work, involvement of CoP-members • Evaluation and ongoing enhancement based on evaluation (evaluation form available at WP2 data room) 	
Auxiliary material	<ul style="list-style-type: none"> • Templates and guidelines provided by WP2 on STOP-IT platform (such as collection of methods for meetings, list of participants, workshop evaluation form etc.) • Webinar provided by WP2: Communities of Practice – understanding, acting, launching and maintaining of local CoPs 	
Knowledge Management and Documentation	<p>Knowledge Management</p> <p>Knowledge management is under the responsibility of the facilitator in collaboration/agreement with the CoP manager, generating an environment of trust by</p> <ul style="list-style-type: none"> • Creating a conducive environment for the learning process • Establishing common work goals and clarify working methods <p>Documentation (under consideration of confidentiality)</p> <p>The CoP manager has the ownership and responsibility of the CoP, i.e. leading role for documentation process, receiving support from the facilitator (after approval)</p> <ul style="list-style-type: none"> • Minutes of meetings, presentations (if confidentiality permits), workshop evaluation forms • Summary of key discussions and insights of CoP (annual public report) 	



4.3.2 Summary of key facts / characterization of project CoPs

Key aspects	Project CoP	Level of Confidentiality: <i>Medium/Low</i>
Timeline	Start: M1 Duration: end of project	
Targets	<ul style="list-style-type: none"> Active networking/knowledge exchange between FR and FL as well as researcher and non-researchers Providing/exchanging inputs, information and lessons learnt (across WPs and local sites) Facilitating and accelerating business improvement (WP 9) Manage inter-WP discussion about technologies/strategies to adopt and how the user's interest could be materialise in the technology to be developed 	
Responsibilities	<p><i>Project CoPs will be launched on various levels (i. e. task- or WP- or project-level, within STC, SAB or PAB or within water utility group consisting of FR and FL), whereas the leadership (= CoP manager and facilitator) depends on the level the CoP is launched (e. g. task- or WP- leader or coordinator)</i></p> <ul style="list-style-type: none"> CoP managers are responsible for supporting the communities to focus on topics related to the work carried out at task and work package level in the project, as well as developing its domain and maintain relationships A recorder developing minutes can be appointed by the CoP manager, the CoP manager is responsible for circulating the minutes within the entire group and the STOP-IT consortium Representatives from WP2 will give support and supervision throughout the duration of the STOP-IT project in order to ensure that the issues the communities of practice might meet are addressed <p><i>Note: Within project CoP, the CoP manager is also facilitating the CoP, helping the community to focus on its domain, maintain relationships and develop its practice. He is given the authority to lead, to impose clear rules and roles, and to generate an environment of trust.</i></p>	
Participants	<p>Stakeholders (depending on level of CoP): project members on various levels such as task-, WP-, project-level, PAB-members, STC-members</p> <p>Estimated Group size (core team plus actors): 5-100 participants</p>	
Community spaces	<ul style="list-style-type: none"> Face to face meetings/workshops in task- or WP-meetings, annual project meetings Virtual meetings/phone conferences Virtual Communication&Innovation Platform (PNO), with specific datarooms for each CoP 	
Confidentiality	<ul style="list-style-type: none"> Protection and security of personal data and confidential information has to be ensured according to D10.2 and D1.3 Terms of confidentiality can be specified by CoP manager (non-disclosure agreement, etc.) 	
Information/ Data exchange	<p>Kind of data/information exchanged</p> <ul style="list-style-type: none"> Data/Information relevant for action and project work task- or WP- or project-level, within STC, SAB or PAB Results transferred from local CoP to project CoP <p>Channels for data/information exchange</p> <ul style="list-style-type: none"> Cloud technology provided by WP9 (data rooms on WP-level, if needed with restricted access) Email (mailing list or individual mail) STOP-IT Homepage to refer to technology, tools etc. from the STOP-IT project <p> <i>Please note: data protection and security has to be ensured according to agreed security standards, see also "Confidentiality"</i></p>	
Input/Output	<p>Input/Information and output/outcome needed according to CoP-activities on and inbetween different CoP-levels within the STOP-IT project</p>	
Set-up and maintaining	<p>Initiation of CoP</p> <ul style="list-style-type: none"> CoP manager/facilitator is set (task- or WP- leader or coordinator) CoP managers identify relevant actors, get into first contact with relevant external stakeholders, internal stakeholders from inside their organization and the STOP-IT consortium CoP manager motivates actors to participate in the CoP through the invitation letter A recorder for the meetings is set from the group of people attending. The recorder is responsible for elaborating minutes or any report required in collaboration with the CoP manager CoP manager sets up the agendas of the meetings and circulates with members 	




Key aspects	Project CoP	Level of Confidentiality: <i>Medium/Low</i>
	<p>Maintaining of CoP</p> <ul style="list-style-type: none"> • Frequency of meetings according to timetables set by each CoP-manager • Information about ongoing work, involvement of CoP-members • Actions set after each meeting for members to take before next meeting • CoP manager maintains contact with members and checks if there are issues with the actions set • Minutes and any resulting reports are circulated with the members by the CoP manager prior to sharing with the rest of the STOP-IT consortium • Evaluation (of face-to-face meetings) and ongoing enhancement based on evaluation (evaluation form available on WP2 data room) 	
Auxiliary material	Templates and guidelines (such as collection of methods for meetings, list of participants, workshop evaluation form etc.) provided by WP2 at STOP-IT WP2 data room	
Knowledge Management and Documentation	<p>Knowledge management and documentation are under the responsibility of the CoP-manager receiving support from WP2 (i. e. templates, guidance, supervision)</p> <p>Knowledge Management</p> <ul style="list-style-type: none"> • Create a conducive environment for the learning process • Establish common work goals and clarify working methods <p>Documentation according to activities needs and Description of Action</p> <ul style="list-style-type: none"> • Minutes of meetings, presentations (if confidentiality permits), workshop evaluation forms • Summary of key discussions and insights of CoP (annual public report) • Recommendations in the use of technologies, tools etc. provided by STOP-IT project • Deliverables and reports 	

4.3.3 Summary of key facts / characterization of trans-project CoPs

Key aspects	Trans-project CoP	Level of Confidentiality: <i>Low/None</i>
Timeline	Start: M1 Duration: end of project	
Targets	<ul style="list-style-type: none"> • Establish interaction with national and international networks or research communities • Ensure/enhance knowledge exchange between the project and other relevant research communities dealing with critical infrastructure (not limited to water systems) • Encourage the dialogue for the pre-establishment of certification mechanisms by facilitating the debate and expert elicitation and consultation across borders between different CIs • Manage inter-WP discussions about the technologies/strategies to adopt and how user interests could be materialised in the technologies to be developed 	
Responsibilities	<p><i>Trans-project CoP</i> is under leadership of STOP-IT Coordinator in collaboration with selected STOP-IT experts (=facilitators)</p> <ul style="list-style-type: none"> • The Coordinator is responsible for looking beyond the STOP-IT project and positioning the CoPs in an international context with alignment to European practices in the field • The Coordinator designates selected STOP-IT experts as facilitators to be in touch/connected to international networks, associations and research projects • Facilitators are responsible for taking minutes, elaborating reports of meetings (attended or hosted) and circulating these within the STOP-IT community. The facilitator should work in close collaboration with the Communication and Dissemination (WP9) team of the STOP-IT project • WP2 supports the Coordinator and facilitators by providing templates and supervising the setting up, meetings including the agenda, working methods for discussions, etc. 	
Participants	<p>Stakeholders: STOP-IT partners, research communities or associations dealing with protection of critical infrastructure, national and international networks, international associations (such as WssTP, IWA) and international water industry</p> <p>Estimated Group size: > 10 participants</p>	



Key aspects	Trans-project CoP	Level of Confidentiality: Low/None
Community spaces	<ul style="list-style-type: none"> • Face to face meetings/workshops at events, conferences, exhibitions or open sessions at annual STOP-IT project meetings or meetings from other research associations • Communication via online media (newsletter, homepage, social media and cloud technology) • Virtual meetings/phone conferences, participation at webinars • Virtual Communication&Innovation Platform (PNO), with specific datarooms for each CoP. 	
Confidentiality	<ul style="list-style-type: none"> • Protection and security of personal data and confidential information has to be ensured according to D10.2 and D1.3 	
Information/ Data exchange	<p>Kind of data/information exchanged: Announcements, news, ongoing activities (mainly dissemination)</p> <p>Channels for data/information exchange</p> <ul style="list-style-type: none"> • Newsletter, STOP-IT magazine • STOP-IT Homepage, Twitter, Facebook, LinkedIn • Cloud technology (data room with public access) <p> <i>Please note: data protection and security has to be ensured according to agreed security standards, see also “Confidentiality”</i></p>	
Input/Output	<p>Input/Information relevant (generalized) project-outcomes from local and project CoP level</p> <p>Output/Outcome roadmaps on international level, provision of research outcomes</p>	
Set-up and maintaining	<p>Initiation of CoP</p> <ul style="list-style-type: none"> • Facilitators are designated by the Coordinator, depending on the topic of the meeting and required knowledge • Facilitators will be responsible for elaborating minutes and any reports required (from meetings/events attended or hosted) • Identify relevant actors, get into first contact with relevant associations and networks • Define the ambition of the CoP and the goals <p>Maintaining of CoP</p> <ul style="list-style-type: none"> • Provide public sessions during STOP-IT annual project meetings • Connect and participate to/at existing networks meetings • Identify actions that members of the CoP can take between the meetings • Elaborate and circulate, together with the CoP coordinator, minutes or any reports elaborated by the CoP, with the CoP members and external stakeholders, as requested/required • Inform participants of the progress of the STOP-IT project through regular newsletters and briefings 	
Auxiliary material	<ul style="list-style-type: none"> • Information material (STOP-IT brochure, annual magazine, leaflet, etc.) 	
Knowledge Management and Documentation	<p>Knowledge Management and Documentation are under the responsibility of the facilitators receiving support from WP2 (such as provision of templates, working methods)</p> <ul style="list-style-type: none"> • Notes/Minutes of events, conferences, exhibitions or open sessions STOP-IT members have participated in provide information to the project • Summary of key discussions and insights of CoP (annual public report) 	



5 Concluding remarks

STOP-IT is dealing with cyber and physical threats to drinking water infrastructure. To provide prevention, detection, response and mitigation measures to handle or reduce relevant risks, information about supply systems and vulnerabilities has to be exchanged between several actors (i. e. project members and external stakeholders). As this information as well as mitigation strategies developed must be protected against abuse by unauthorized persons it was decided to create a three level-approach of Communities of Practice on local, project and trans-project level, providing community spaces that are taking into account and fulfilling confidential requirements.

Some of the originators themselves note that Communities of Practice might sound like another "soft" management fad, because its primary "output" – knowledge – is intangible (Wenger and Snyder 2000). However, the format as described in this guideline differs from formal work groups and project teams, in regard that the community is geared towards exchange of knowledge and development of capabilities concerning a specific, practical domain, rather than specific tasks or deliveries.

In STOP-IT, the establishment of CoPs at different levels is to provide creative space and room for project partners, Frontrunners and Followers, as well as external stakeholders. A set of actively evolving CoPs will help to ensure that the knowledge and solutions coming out of the project "fit" the current practices and challenges identified by the utilities but also pay attention to information, expertise and needs of external parties or experts. The shared domain and interaction between community members may also facilitate a wider uptake of the new technologies by promoting best practices and disseminating knowledge to a wider range of stakeholders.

The conceptual CoP-design of STOP-IT provides a structure for this to happen, but the success and usefulness of each single CoP will to a large extent be dependent on the level of commitment and effort put into it by the participants.



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7 Glossary

Ambition	The overall target set to be achieved; e. g. have 25 % of identified stakeholders active in the CoP
CoP Manager	Person responsible for the CoP management helping the community to focus on its domain, maintain relationships and develop its practice
Facilitator	‘Independent expert’ who is given the authority to lead, impose clear rules and roles, and generate an environment of trust helping to bring about an outcome (such as learning, productivity or communication) by providing assistance, guidance, or supervision <i>Note: Facilitators will be the bridge between the STOP-IT project and the CoP, taking an advisory and/or active role in launching the CoP and conduction of its major meetings, helping to ensure that key elements and forms of interaction are developing as intended</i>
Goal	Object of the ambition; e. g. implement secure IT protocols for the water infrastructure
Knowledge Management	Process of creating, sharing, using and managing knowledge and information
Outcome	Level of performance or achievement occurring as result of activities. Key performance indicator (KPI); e.g. three stakeholders implement a new platform for IT security;
Output	Immediate results of meetings; e. g. reports, meeting minutes, attendees lists, action plans, roadmaps. Outputs do not address the value or impact of activities.
Recorder	Person responsible for the writing and collecting of minutes and reports from the CoP meetings, responsible for circulating the final versions among the meeting participants and responsible to ensure that confidentiality requirements (both for the project and members) are followed.
Scope	Specific actions relating to the CoP; e.g. learn and communicate about best available practices



ANNEX I: STOP-IT CoP Group Interview Template

STOP-IT CoP Group Interview Template

- Part A - Key questions on the common objective⁸
- Part B - Key questions on the community operation⁸
- Part C - Key questions on the knowledge systems⁸
- Part D – Value matrix template

⁸World Bank Group (2017), p. 51-53



Annex I: Part A - Key questions on the common objective

Goals: develop a shared understanding of the domain and objectives, find its legitimacy in the organization, and engage the passion of members.

What topics and issues do we really care about?

What are the development challenges we want to address?

What outcomes do we want to focus on?

What is out of scope?

How is this domain connected to the organization's strategy?

What is in it for us?

What kind of influence do we want to have?

How will we communicate the community's goals and achievements, and to whom?



Annex I: Part B - Key questions on the community operation

Goals: find the community's specific way to operate, build relationships, and grow.

How will the community be organized and run?

Is membership open, closed or something in between?

What roles are members going to play?

How will decisions be made?

How often will the community meet?

What kind of activities will generate energy and develop trust?

What kind of behaviors can we expect from each other (respect, honest feedback, etc.)?

How can the community balance the needs of various segments of members?



Annex I: Part C - Key questions on the knowledge systems

Goals: design the community in a way that it becomes an effective knowledge resource to its members.

How will community actions result in outcomes?

What knowledge to share, develop, document?

What kinds of learning activities to organize?

How should we use collective learning, versus expert-apprentice, versus external research/expertise?

What potential work groups could be created?

Where are the sources of knowledge and benchmarks outside the community?

How should we support members as both experts and learners?

What are the benefits for members?



Annex I: Part D – Value matrix template

	Value Matrix Template	
	Short term value	Long term value
Benefits to institutions		
Benefits to members		



STOP-IT



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