

TECHNICAL BOARD

CEN/BT by correspondence

For information

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SUBJECT

Announcement of a new CEN Workshop ‘Industrial Symbiosis’

BACKGROUND

Industrial symbiosis is the use by one company or sector of by-products or waste (including residues, energy, water, logistics, capacity, expertise, equipment and materials) from another. Over the last decade and longer, industrial symbiosis has been taken up on every continent, successfully crossing cultures and economies

As industrial symbiosis finds its way into the policies, reports and recommendations of the European Commission across multiple DGs and various member states at the national, regional and local scale, the variety of terminologies and methodologies used in these documents can be confusing and sometimes misleading. Such confusion dilutes the power of the approach to deliver resource efficiency, greenhouse gas reduction and economic benefits.

To support the effective adoption of industrial symbiosis by the public and private sector, and to advance toward mainstream use, reaching and documenting a consensus on best practice methodologies supporting the implementation of industrial symbiosis across Europe and beyond is considered an important enabling step.

Documenting such consensus will be the ambition of this Workshop and the CWA that it will produce. This Workshop is supported by the Horizon 2020 SPIRE projects, SHAREBOX and EPOS, and the Interreg Europe projects, TRIS and SYMBI.

The proposed Workshop does not cover any of the aspects specified in CEN-CENELEC Guide 29 ‘CEN/CENELEC Workshop Agreements’ that would subject its creation to CEN/BT approval.

The Secretariat of the Workshop will be provided by the Slovenian Institute for Standardization SIST.

The kick-off meeting will take place on 21 February 2018 between 13:00H and 17:00H at the International Synergies Ltd office in Brussels, Avenue d’Auderghem 22-28 in Brussels. Parties interested in participating in the Workshop kick-off meeting are kindly invited to register with the SIST Workshop secretariat (cwa@sist.si). The draft Project Plan of the future Workshop and the Workshop’s self-assessment are in Annex A.

The draft Project Plan, agenda and commenting form (written comments have to be provided by 15 February at the latest) for the first meeting are also available on the CEN website.

DRAFT

Project Plan for the CEN Workshop on Industrial Symbiosis

Summary

As industrial symbiosis finds its way into the policies, reports and recommendations of the European Commission across multiple DGs and various member states at the national, regional and local scale, the variety of terminologies and methodologies used in these documents can be confusing and sometimes misleading. Such confusion dilutes the power of the approach to deliver resource efficiency, greenhouse gas reduction and economic benefits.

To support the effective adoption of industrial symbiosis by the public and private sector, and to advance toward mainstream use, it is intended that this CEN Workshop Agreement (CWA) will provide a consensus on best practice methodologies supporting industrial symbiosis implementation across Europe and beyond.

The kick-off meeting will be held on 21 February 2018, in Brussels. The final deliverable of this Workshop should be completed and published by November 2018. All interested parties are welcome to register for participation at the Kick-off meeting with the Workshop Secretariat cwa@sist.si, preferably by 15 February 2018. Written comments on the draft Project Plan should be submitted to the Workshop Secretariat cwa@sist.si, before 15 February 2018.

1. Status of the Project Plan

For comments and discussion during the kick-off meeting, and subsequent approval

2. Background to the Workshop

Industrial symbiosis (IS) is the use by one company or sector of by-products or waste (including residues, energy, water, logistics, capacity, expertise, equipment and materials), from another. Over the last decade and more, industrial symbiosis has been taken up on every continent, successfully crossing cultures and economies. IS has proven successful not only in diverting waste from landfill or incineration, but also in closing the resources loop and moving waste up the value chain. The industrial symbiosis approach has delivered benefits that cross the 3 pillars of sustainability and support the delivery of a more circular economy. The European Resource Efficiency Platform championed IS as a mechanism for reducing carbon, preserving critical resources and securing business sustainability. It is recognised as a driver and accelerator of innovation.

There are multiple directives that mention industrial symbiosis and its relationship to resource efficiency within the European Union, although few are specific to industrial symbiosis as a focus; rather, industrial symbiosis is included as support to their primary aims. Some of the most relevant documents are listed below:

- Circular Economy Package includes industrial symbiosis (since 2014)
- European Environment Agency, Circular Economy in Europe (2016)
- European Resource Efficiency Platform key recommendation (2014)
- DG Enterprise: Communique on Green Entrepreneurship (2013)
- DG Environment: Priority for industrial policy in (2013) recommendation
- DG Regions: Connecting Smart and Sustainable Growth through Smart Specialisation – exemplar (2012)
- Roadmap to a Resource Efficient Europe – exemplar (2011)
- DG Enterprise: Sustainable Industry: Going for Growth & Resource Efficiency – exemplar (2011)
- European Waste Framework Directive ‘Being Wise with Waste’ – Best Practice (2009)

Resource efficiency through industrial symbiosis offers economic opportunities for European industry, by improving competitiveness. To pave the way forward for industrial symbiosis, this CWA project will review best practice methodologies for industrial symbiosis in use around the world, and develop a consensus on the vocabulary essential to the understanding of industrial symbiosis. These common methodologies and terminologies can then form the basis for policies, recommendations and widespread implementation.

2.1 Industrial Symbiosis - Introduction

The concept of industrial symbiosis (IS) in the academic literature is traced back to the seminal article by Frosch and Gallopoulos in *Scientific American*¹ (1989), where the authors envisioned “industrial ecosystems” in which “the consumption of energy and materials is optimized and the effluents of one process serve as the raw material for another process;” various manufacturing sectors have incorporated its principles into standard operating procedures for far longer. Recently, industrial symbiosis has gained increasing attention in production economics with the reduction of waste emissions and primary resources consumption as first areas of interest, becoming a mainstream approach for delivering the circular economy².

2.2 Motivation for CEN Workshop

As industrial symbiosis finds its way into the policies, reports and recommendations of the European Commission across multiple DGs and various member states at the national, regional and local scale, the variety of terminologies and methodologies used in these documents can be confusing and sometimes misleading. Such confusion dilutes the power of the approach to deliver resource efficiency, greenhouse gas reduction and economic benefits.

To support the effective adoption of industrial symbiosis by the public and private sector, and to advance toward mainstream adoption, it is intended that this CEN Workshop Agreement (CWA) will provide a consensus on best practice methodologies supporting industrial symbiosis implementation across Europe and beyond.

¹ Frosch, R.A. and Gallopoulos, N.E. (1989) Strategies for Manufacturing. *Scientific American*, 261, 144-152.

² <https://www.wrforum.org/event/world-circular-economy-forum-2017/>

Contribution to standardization activities has been specified as one of the means for dissemination for the projects SHAREBOX (Secure Platform for the Flexible Management of Shared Process Resources) and EPOS (Enhanced energy and resource efficiency and Performance in process industry Operations via onsite and cross-sectorial Symbiosis) of the European Commission's Horizon 2020 programme, SPIRE Sustainable Process Industries PPP.

Advancing policy to stimulate industrial symbiosis is an objective of Interreg Europe projects TRIS (Transitioning Regions to Industrial Symbiosis) and SYMBI (Industrial Symbiosis for a Resource Efficient Economy).

Aims, Objectives & Benefits:

The aims and objectives of the proposed workshop are as follows:

- Support the adoption of best practice methodologies proven through implementation.
- Support the mutual understanding of businesses/policy makers/users/organisations using the term industrial symbiosis in different ways, for mutual benefit and effectiveness.

2.3 Target audiences

The following stakeholders are considered the primary target group for the use of the methodologies and terminologies together with associated references to assessment frameworks and policies in industrial symbiosis:

- Companies involved in resource efficiency and industrial symbiosis, including of different process industries and energy-intensive industries.
- Industrial park managers and site developers
- Industrial symbiosis facilitators and enablers
- Trade associations communicating best practice to their members
- Governmental agencies at all levels: local, regional, national and supranational
- Policy makers (political and civil servants) and regulators
- Funders and investors supporting industrial symbiosis activity
- R&D and academic communities.

3. Workshop proposers and Workshop participants

The workshop has been proposed to meet one of the deliverables of Horizon 2020–SPIRE projects SHAREBOX and EPOS. The SHAREBOX project contribution is led by International Synergies and has 15 other partners: the University of Twente, University of Leeds, Zurich University of Applied Science, the Ceramic Industry Research Association, IRIS (advanced engineering and research), Universitat Politècnica de Catalunya, DECHEMA (Society for Chemical Engineering and Biotechnology), Chemie-Cluster Bayern, Keros Cerámica, Kerafrit, Ibérica de Suspensiones, Guzman Global, Eskişehir Chamber of Industry, Nepic and the University of Strathclyde. The EPOS project contribution to the standards work is led by INEOS; the project is coordinated by UGent (Ghent University) and has 12 additional partners: ArcelorMittal, Cemex (Poland & Switzerland), INEOS, Omya, Veolia, EPFL (Ecole Polytechnique Fédérale de Lausanne), Belsim, Cimark, Korona, Quantis and Strane.

A broad range of stakeholders are invited to participate in the workshop, amongst others:

- Companies involved in resource efficiency and industrial symbiosis, and their representative trade associations.
- Policy makers and government agencies at all levels.
- Stakeholders previously been engaged in national and European standardization on the circular economy, resource efficiency and ecodesign.
- Companies/organizations participating in related SPIRE projects are invited to join.

Participation in the Workshop is open to anyone, and the opportunity to participate will be widely advertised prior to the kick-off meeting by its proposers, by CEN and their member bodies.

4. Workshop scope and objectives (for consensus)

Scope

This CEN Workshop Agreement will deliver a CWA on terminologies and methodologies for industrial symbiosis. Best practice guidelines are distilled by comparing different methodologies and delivered impacts.

Limitations

It will not be possible to analyse all existing implementation models. Contributions will be invited from practical examples of self-organised, expert, facilitated, strategic and ICT-only cases to distil the key elements and historical impacts delivered by each model relative to investment.

5. Workshop programme

The CWA will be drafted and published in English.

The estimated duration of this workshop is 7-8 months, completing no later than November 2018. During the Workshop lifetime, several meetings are foreseen depending on the project evolution. Any meeting except for the kick-off can be organised as a virtual meeting.

Work plan

Table 1 provides an overview of the planned work schedule. After elaborating and advancing the draft CWA, an internal review will be conducted to receive and process any further comments from Workshop participants on the plan.

Table 1 Planned Work Schedule

Task	Description	Estimated Date	Duration	Notes
1	CEN/WS Project Plan submitted to CCMC	December 2017		Submitted late December
2	Announcement of the intended CEN WS on CEN website. Collection of comments in response to announcement.	17 January 2018	30 days notice	
3	Announcement of the Kick Off and 1 st CEN Workshop (to be held together, back to back)			

4	Circulation of Base Document (Draft version 1) to be discussed at 1 st workshop	February 2018		Min 2 wks to review before Kick Off
5	CEN WS Kick Off Meeting. Approval of Project Plan (taking comments into account), the Secretariat, Chair and vice-Chair	21 February 2018	1/2 day	Brussels
6	1st Workshop Plenary Meeting (follows directly on Kick Off meeting) to discuss Base Document and comments	21 February 2018	1/2 day	Brussels
7	Create CWA Draft version 2	March 2018	30 days	Assimilates agreements from 1 st Workshop Meeting
8	Circulation of CWA Draft version 2 and collection of comments from the Workshop participants	March 2018		Min 2 wks to review
9	2nd Workshop Plenary Meeting, discuss draft CWA version 2 and collect comments	April 2018	1/2 day	Virtual meeting
10	Create CWA final Draft.	May/June 2018	30 days	Assimilates agreements for 2 nd Workshop Meeting
11	Circulation of CWA final Draft and collection of comments from the Workshop participants	June 2018	30 days	End of June.
12	Final CWA Plenary Meeting. Final version approval.	July 2018	1/2 day	Virtual meeting
13	Publication of CWA after editorial check by CCMC	September 2018		

6. Workshop structure

This Workshop shall be led by a chairperson and in case of absence or unavailability, by the vice-chair. The Workshop Secretariat shall be responsible for the management of the Workshop.

6.1 CEN Workshop Chairperson

Proposed: SHAREBOX, International Synergies – Dr. Rachel Lombardi

A proposal for the chairperson will be made by the Workshop proposers; he/she or any other candidate nominated during the period of publication of this Project Plan or at the Kick-off will be approved at the Kick-off meeting by the parties present.

Responsibilities include:

- Chairing the CEN Workshop meetings
- Representing the CEN Workshop in outside meetings in cooperation with CEN-CENELEC Management Centre (CCMC) and with SIST, the Workshop Secretariat
- Monitoring the progress of the CWA
- Interfacing with CCMC regarding strategic directions, problems arising, external relationships, etc.

6.2 CEN Workshop Vice-Chair

Proposed: EPOS, INEOS – Prof. Dr. Greet Van Eetvelde

The Workshop vice-chair shall be appointed in the Kick-off meeting.

Responsibilities include:

- Supporting and assisting in all responsibilities outlined for the chairperson
- In the absence of the chairperson, representing the CEN Workshop at outside meetings in cooperation with CCMC and interface with CCMC regarding strategic directions, problems arising, external relationships, etc.

6.3 CEN Workshop Secretariat

Slovenia Institute of Standardization (SIST)

The CEN Workshop Secretariat provides the formal link to the CEN system.

The following main activities will be carried out by the Workshop Secretariat:

- CWA Administration on behalf of ShareBox as required by CEN/CENELEC
- Ensuring publication of the workshop Project Plan on the CEN web-site to commence 30-day workshop announcement
- The Secretariat will be required to invite participants, and ensure registration for meetings
- The Secretariat will be required to attend Workshop meetings
- Review of drafts and final WA for consistency with CEN guidelines
- Review final workshop agreement and submission of approved document for publication
- Manage CEN Workshop document registers
- Submission of final CWA to CEN/CENELEC for publication using the CEN drafting template
- Assist Chairperson in monitoring and following-up of electronic discussions – in case the CEN Workshop is mainly working by electronic means

SIST will provide the Workshop Secretariat subject to formal approval of the Project plan at the kick-off meeting. The Workshop kick-off will be held on 21 February 2018, in Brussels (to be confirmed).

The format of the Workshop will consist of plenary discussion around general comments on a seed document provided in advance, breakout groups to discuss detailed comments and a return to plenary to agree the final draft Agreement for editing and publication.

7. Resource requirements

Costs for the Workshop's operation and any administrative fees will be met from the following European project budgets: Horizon 2020 SHAREBOX; Interreg Europe TRIS (Transitioning Regions to Industrial Symbiosis); and Interreg Europe SYMBI (Industrial Symbiosis for a Resource Efficient Economy).

Participation to this workshop is open to all interested parties. All physical meetings will be located in Brussels (to be confirmed). Use of electronic meetings will be encouraged as much as possible. The registration and participation at this CEN Workshop is free of charge; each participant shall bear his/her own cost for travel and subsistence.

8. Related activities, liaisons, etc.

The envisaged CWA is proposed through the European research projects SHAREBOX and EPOS. Interreg Europe projects TRIS (Transitioning Regions to Industrial Symbiosis) and SYMBI (Industrial Symbiosis for a Resource Efficient Economy) also support this CWA.

9. Contact points

<p>Proposed Chairperson:</p> <p>Dr Rachel Lombardi International Synergies Limited Newhall Place Unit 5, Newhall Hill Birmingham UK, B1 3JH, UK T: +44 (0) 121 433 2660 M: +44 (0) 7568 108 287 E: Rachel.lombardi@international-synergies.com W: www.international-synergies.com</p>	<p>Secretariat:</p> <p>Patricija Doplihar Slovenian Institute for Standardization Šmartinska c.152 SI-1000 Ljubljana, Slovenia T: +386 1 478 3013 M: + E: CWA@sist.si W: www.sist.si</p>
<p>Proposed Vice-Chair:</p> <p>Dr Greet Van Eetvelde INEOS Group AG Avenue des Uttins 3 1180 Rolle - Switzerland T: +41 21 627 7098 M: +41 79 915 6348 E: Greet.VanEetvelde@ineos.com W: www.ineos.com</p>	<p>CEN-CENELEC Management Centre:</p> <p>Luc Van den Berghe CCMC Rue de Science 23 B-1000 Brussels, Belgium T.: +32 2 519 68 71 E: lvandenberghe@cencenelec.eu W: www.cencenelec.eu</p>

Annex A (normative) Template for the self-assessment

Title of the proposed CWA: *Industrial Symbiosis*

1. Does the proposed CWA conflict with an EN or an HD for CENELEC?

NO

YES → **WARNING:** Work on the proposed CWA shall not be initiated.

2. Does the proposed CWA intend to define requirements related to safety aspects?

NO

YES Is the proposed CWA within the scope of

CEN? → The CWA proposal shall be submitted to CEN/BT for decision.

CENELEC? → **WARNING:** Work on the proposed CWA shall not be initiated.

3. Is the scope of the proposed CWA within the scope of an existing CEN/CENELEC technical body?

NO

YES → The relevant CEN/CENELEC technical body shall be consulted on the CWA proposal:

- If this technical body responds positively and sees no harm in the CWA being developed, the CWA proposal may be processed.
- If the technical body is opposed to a CWA being launched, the CWA proposal shall be submitted to the CEN/CENELEC BT(s) for decision.

4. Does the proposed CWA intend to define requirements related to management system aspects?

NO

YES → The CWA proposal shall be submitted to the CEN/CENELEC BT(s) for decision.

5. Does the proposed CWA intend to define requirements related to conformity assessment aspects?

NO

YES → CEN/CENELEC Internal Regulations - Part 3, 6.7 applies.

If all these questions are answered NO, the CWA proposal may be processed.

If not, special conditions apply as given above.

R. Bombardieri 9 Jan 2018