



NanoCommons
Nano-Knowledge Community

**The European Nanotechnology Community Informatics Platform:
Bridging data and disciplinary gaps for industry and regulators**

Grant Agreement Number 731032

Deliverable Report 2.2

Deliverable	D2.2 - 1 st set of Stakeholder Workshops and Report on Stakeholder feedback on the usability of NanoCommons portal & tools
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Table of contents

Introduction	3
List of Abbreviations	4
1. Stakeholder workshops and engagement activities	5
1.1 Nanotechnology Industries Association (NIA) Symposium	5
1.2 Spring School on Applications and Safety Assessment of Nanomaterials: Technological Approaches and Regulatory Aspects	6
1.3 EuroNanoForum	6
1.4 US-EU Nanoinformatics integration workshop,	7
1.5 Further activities of the project consortium	8
2. Stakeholder feedback on the usability of NanoCommons portal & tools	8
Appendix	9
A1 TA call flyer for distribution at several stakeholder engagement events	9
A2 Agenda of the Spring School in Alessandria, Italy (May 2019)	11
A3 Agenda of the US-EU Nanoinformatics meeting in Aix-en-Provence, France (June 2019)	13

Introduction

Deliverable 2.2 is part of Work Package 2 (WP2) '*Community building*'. WP2 supports the overall objective of NanoCommons to deliver a sustainable and openly accessible nanoinformatics framework (knowledgebase and integrated computational tools, supported by expert advice, data interpretation and training) by building a *nanoinformatics for safety* community by bringing together scientists from different fields of nanosafety research bridging the gap towards industry and regulatory stakeholders to collectively move forward the field.

The community building actions, namely a first set of stakeholder workshops to analyse their needs and to gather feedback on usability of the NanoCommons platform, delivered to date are reported here. Because Deliverable 2.2 builds on Deliverable 2.1 only the new community building activities (since January 2019) are reported here; D2.2 also indicates next steps and planned actions for the next phase of the project.

WP2 aims to bring together researchers from all aspects of nanosafety research and creating a community that will embed their knowledge, expertise and interests to promote research and data innovation and societal engagement. To achieve this, NanoCommons needs to survey the community and identify the needs of the different stakeholders, and based on these needs to identify the means to meet these needs in a systematic manner, and to communicate these solutions effectively among the research and stakeholder communities. Key to this provision of community-driven services is the project's visibility at various scientific, industrial, regulatory and public events as well as its facilitation of two-way communication with stakeholders at these events. During these events, NanoCommons needs to significantly contribute by showcasing its services and results, and discussing the match between our services and the stakeholders and communities' needs. Other core activities include being part of organisational efforts for key nanosafety events and continuous assessment of the latest research and data developments and incorporating the most significant of these into the NanoCommons platform, thereby making the developments available to the nanosafety community via the Transnational Access (TA) component of NanoCommons.

While showcasing its services and results the mentioned two-way approach will lead to stakeholder feedback and therefore an iterative process to improve and enhance the NanoCommons services by tailoring them to stakeholders needs.

The need for community building and knowledge sharing within the nanosafety community has been clearly expressed through the EU NanoSafety Cluster's (NSC) Steering Group (SG) and Plenary meetings. Therefore, part of the community building strategy is to actively support NSC events, including the Young Scientists forum, facilitation of an annual conference for the European nanosafety community and attendance of other key stakeholder events such as the NIA (Nanotechnology Industries Association) symposia. The community building is facilitated by the fact that a significant number of the NanoCommons partners are members of, and actively involved with, the NSC (Coordination Team, Steering Group, Dissemination Team, Secretariat members).

The list of all events organised or co-organised by NanoCommons are included on the project website <https://www.nanocommons.eu/news-events/>. These will be later transferred to a dedicated page under NanoCommons knowledge infrastructure <https://infrastructure.nanocommons.eu/events/>

List of abbreviations

CEINT - Centre for Environmental Implications of Nanotechnology

DoA - Description of Action

EC - European Commission

ECHA - European Chemicals Agency

EUON - European Union Observatory for Nanomaterials

NanoFASE - Nanomaterial Fate and Speciation in the Environment (H2020 project)

NIA - Nanotechnology Industries Association

NIKC - Nanoinformatics Knowledge Commons

NM - Nanomaterials

NMBP - Nanotechnologies, Advanced Materials, Biotechnology and Advanced Manufacturing and Processing

NSC - NanoSafety Cluster

REACH - Registration, Evaluation, Authorisation and Restriction of Chemicals

SOPs - Standard Operating Procedures

TA - Transnational Access

WP - Work Package

1. Stakeholder workshops and engagement activities

Representatives from WP2 as well as from the project consortium took part in a series of workshops and engagement activities to promote the NanoCommons platform, to gather feedback on its current development status as well as to identify stakeholder specific needs to be incorporated into the NanoCommons platform.

1.1 Nanotechnology Industries Association (NIA) Symposium

27 March 2019, Brussels, Belgium

At the NIA symposium Andreas Falk (BioNanoNet), Lee Walker (United Kingdom Research and Innovation) and Anastasios Papadiamantis (University of Birmingham) represented NanoCommons. This stakeholder event was of specific importance because it brought together 20 different Horizon 2020 NMBP projects from the NanoSafety Cluster with industry and regulatory stakeholders.

Director General Claire Skentelbery and Director of Regulatory Affairs David Carlander welcomed about 50 industry representatives, regulators, European Commission (EC) officials and academics during this event. This event was shaped by high level presentations on state-of-the-art issues, concerns and perspectives in nano innovation and safety. Specific focus points of these presentations were on:

- *'Nanotechnology into the future'* (Carlos Eduardo Lima da Cunha, EC) around the fact that nano is no longer an exotic affair but now an advanced material with huge potential to move towards sustainability by design.
- *'Nano in Business'* (Gregor Schneider, RAS AG) pinpointing the interplay of science, regulatory awareness and business sense showcasing the development of nanosilver biocides.
- *'Regulation and standards priorities'* (Abdelqader Sumrein, ECHA) gave insights into a (non-binding) guidance on the 'best/safest way' for companies to meet the new REACH information requirements, fast-tracking work on read-across guidance to align with the new terminology of forms and sets.
- *'What goes around – Nano in waste'* (Tobias Walsler, Verela) highlighted today's challenge to be the identification of removal efficiency of NM by different full-scale waste treatment options, with particular focus on waste incineration plants where the recovery of NMs from residues is difficult due to their dispersion, size and typically low quantity.
- *'Nanosafety governance and civil society expectations'* were presented by Hilary Sutcliffe (SocietyInside) which look largely sensible with a focus on labelling transparency, personal and sustainability benefits of nano-enabled products and information on risks and who is assessing these risks.

Overall, the shared insights and perspectives from the different stakeholder groups highlighted that naturally different stakeholders want different things from such a platform and service, hence the modular approach of NanoCommons fits very well with the different needs.

NanoCommons platform and TA services were advertised through a poster and TA flyers and generally received as a very valuable approach and service of high interest. The pdf TA flyer and the poster is attached in the Appendix A1 of this deliverable.

1.2 Spring School on Applications and Safety Assessment of Nanomaterials: Technological Approaches and Regulatory Aspects

22-24 May, 2019, Alessandria, Italy

NanoCommons was involved in the organisation of the ‘*Spring School – Applications and Safety Assessment of Nanomaterials: Technological Approaches and Regulatory Aspects*’ which took place in Alessandria at the Università del Piemonte Orientale, Italy. This three-day meeting included keynotes and presentations by international experts from different areas of the nanomaterials field (applications, safety and regulatory aspects) all involved in European-level research, mainly associated with the following projects: Nanogentools, NanoCommons, Solution and the Graphene Flagship. This spring school was targeted towards PhD students and other young researchers to give them a comprehensive overview on legislation, toxicological assessment and current applications of nanomaterials.

Anastasios Papadiamantis (University of Birmingham) held a hands-on session on nano data management and presented a keynote lecture on NanoCommons (*The European Nanotechnology Community Informatics Platform: Bridging data and disciplinary gaps for industry and regulators*).

Apart from Anastasios Papadiamantis (University of Birmingham), the Spring School was attended by Antreas Afantitis and Georgia Melagraki (NovaMechanics) and Susanne Resch (BioNanoNet), who also supported the organization of the event.

The agenda of this event can be found in Appendix A2.

1.3 EuroNanoForum

12-14 June, 2019, Bucharest, Romania

The EuroNanoForum 2019 took place in Bucharest, Romania from 12th to 14th June, 2019, and this year’s meeting focus was on ‘Nanotechnology and advanced materials – progress under Horizon 2020 and beyond’. The EuroNanoForum is Europe’s largest networking conference on nanotechnologies and advanced materials science, innovation and business, with approximately 500 participants. This conference was open to all and welcomed contributions and participation from all stakeholder groups (scientific communities, representatives from industry, research and innovation and policy makers) and therefore offered an excellent opportunity to debate cutting edge research, successful industrial implementations as well as regulatory requirements. The conference included plenary sessions, breakout sessions as well as panel and participatory discussions. Additionally, it included satellite events, a large exhibition area, visits to research facilities of the hosting country and generally offered a unique networking opportunity to strengthen existing contacts, and a dissemination platform for sharing project updates and progress with the wider nanotechnologies communities. It was accompanied by poster sessions and interactive web sessions.

EuroNanoForum was attended by BioNanoNet (Andreas Falk), Edelweiss Connect (Lucian Farcas), UKRI (Lee Walker), University of Birmingham (Anastasios Papadiamantis, Iseult Lynch, Cristiana Gheorghie), Nathan Bosse (LEITAT) and Martin Himley (PLUS).

NanoCommons participated in the Nanosafety Cluster booth, and had a presentation in the booth during one of the coffee breaks given by Anastasios Papadiamantis.

Prof. Iseult Lynch presented a keynote talk on NanoCommons in Parallel session 3.3 Open Science and Industry Commons which had the overall goal of addressing how the community can make the most out of

data generated by stakeholders. The underlying documentation system (taxonomy and ontology) and ways to share data (market places) were discussed, together with the construction of actual databases. Iseult's talk was entitled "Enabling FAIRness and Openness of EU NanoSafety Cluster data. The NanoCommons and NanoSolveIT approach".

NanoCommons partners presented 4 posters - Dr Anastasios Papadiamantis (University of Birmingham), Dr Nathan Bossa (LEITAT), Dr Lucian Farcal (Edelweiss Connect) and Dr Martin Himly (Paris Lodron University Salzburg).

Information on programmes, speakers, events and networking opportunities can be found here: <https://www.euronanoforum2019.eu>

1.4 US-EU Nanoinformatics integration workshop

27-28 June 2019, Aix-en-Provence, France

As US-based funding for the NIKC (Nanoinformatics Knowledge Commons) sunsets, the CEINT (Centre for Environmental Implications of Nanotechnology) team is committed to ensuring that its global partners have everything necessary to adopt, adapt and integrate the nanoinformatics resources and processes that have been developed.

The main aim of this small, tailored workshop was to bring forward the applicability of the NIKC database structure and established eNanoGrammar curation procedures towards an EU-NIKC. NIKC has focused, to date, mainly on literature data and the next step will be to open up this structure to the integration of a diverse range of lab data into the informatics platform. The data generated within the NanoFASE project will serve as a test case on how to best integrate a wide variety of project data (e.g. nanomaterial characterisation data, single species ecotoxicology data, mesocosm multi-species data, simple tests to analyse dissolution and attachment behaviour of nanomaterials in different environmental matrices, etc.) into this database structure and if needed to adapt this for a seamless integration.

The goal of this meeting was to agree upon clear and sustainable workflow processes that will support data integration, new research collaborations, and continued growth of comparable curated datasets utilising the NIKC database structure and established eNanoGrammar curation procedures.

The participants left the workshop with a shared and agreed understanding of the sequence of steps, roles and responsibilities, and the technological and time requirements for both contributing to and accessing the growing "NIKC+" dataset.

This includes integration of projects already underway such as SERENADE, eNanoMapper, GRACIOUS and Gov4Nano, with a view to how this incorporates into larger infrastructure initiatives of NanoCommons and EUON. This workshop was attended by the following representatives from NanoCommons:

- UKRI – Lee Walker & Marianne Matzke (+ GRACIOUS, NanoFASE), Claus Svendsen (+ NanoFASE)
- UoB – Anastasios Papadiamantis, Iseult Lynch (+ ACEnano, NanoSolveIT)
- Edelweiss Connect – Thomas Exner (+ OpenRiskNet)
- Biomax – Ivan Stambolic via Weblink/Video Conference

The agenda of this workshop is attached in Appendix A3.

1.5 Further activities of the project consortium

Further activities where NanoCommons was advertised and contact with diverse stakeholder groups was made include:

- SOT (Society of Toxicology) - 58th Annual Meeting & ExpoTox, 10-14th March, 2019, Baltimore, USA
- Webinar on Annotation of Data OpenRiskNet Services, 1st April (organised by Thomas Exner through OpenRiskNet)
- SusChem Workshop: "Towards a New SusChem SIRA", 16th & 17th May, 2019, Brussels
- SETAC (Society for Environmental Toxicology and Chemistry), 26 -30th May, 2019, Helsinki, Finland

WP2 keeps an up to date list of workshops, conferences and stakeholder events with participants from NanoCommons.

2. Stakeholder feedback on the usability of NanoCommons portal and tools

Due to the slightly delayed launch of the Transnational Access (TA) application portal there was no substantial stakeholder feedback yet. However, WP2 asked the project consortium to internally review the portal and to give feedback on usability which will be summarised in the following:

- Where it refers to 'Project details', i.e. the proposed project this application is about – however after filling out EU project involvement on page 1 this might be slightly confusing for the applicant. Therefore, differentiation between those with e.g. 'Title proposed project', 'Details on proposed project' would be helpful.
- The application page would benefit from highlighting that there should be discussions between the expert at the TA offering facility and the applicant prior to the application to specify project lengths, potential dates for the visit etc., highlighting that this contact is not only wished but needed prior to submitting the proposal would make the whole process more transparent for first time applicants. Not everyone – we are expecting here in the first instance a lot of early career scientists to apply – in the nanoworld is familiar with comparable initiatives for facility access applications such as the former QNano or Synchrotron Beamline Applications where this approach is routine.
- Start/End date would benefit from a specification if this means the overall project time or refers to the time of the TA visit
- After submission of the proposal an email confirmation of the submission as well as a notification when results of the application review can be accepted would be helpful.

Further stakeholder feedback will be gathered after the first rounds of successful TA applications, including then also feedback on the actual TA access (experience with the host, travel arrangements, logistics), project delivery, training received and 'after project care', i.e. support from the experts if needed to finish the project with e.g. support for analysis or publication of the results. This feedback will be incorporated in the next versions of the platform and reported in D2.5 and D2.7.

Appendix

A1 TA call flyer for distribution at several stakeholder engagement events

Apply for Transnational Access



Proposal submission:
www.nanocommons.eu/ta-access

Submission deadlines:
1st Call: 31.03.2019
2nd Call: 30.09.2019
Similar dates in 2020

Conditions of Access:
NanoCommons promotes **Open and FAIR data**: TA-funded projects are encouraged to publish Open Access and share data via Creative Commons Licenses.
Funding from NanoCommons must be acknowledged in all outputs (posters, talks, papers, blogs etc.).

Contact Us

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NanoCommons nanosafety tools survey



The European Nanotechnology Community Informatics Platform:
Bridging data and disciplinary gaps for industry and regulators

We Develop, You Access



Experimental Workflows Design & Implementation



Data Management, Processing & Analysis



Data Visualisation Predictive Toxicity



Data Storage & Accessibility

www.nanocommons.eu/ta-access



10 Countries Worldwide



14 Dedicated Partners



30+ Experts

This project has received funding from European Union Horizon 2020 Programme Grant agreement of 731082

Transnational Access Services



Data Visualisation & Predictive Toxicity

Omic, QSARs, modelling and risk assessment tools.



Data Processing & Analysis

From data cleansing, mining and analysis to modelling and from ISA-TAB tools to ontologies.



Data Storage & Online Accessibility

Data repositories, storage, online access



Experimental Workflows Design & Implementation

Automated data acquisition, online lab-books, data curation templates, nanoinformatics implementation.

NanoCommons is designing innovative solutions for data management from the point of experimental design and data generation, data mining, data harmonisation utilising ontologies and semantic mapping of datasets and databases, data utilisation and re-utilisation including data visualisation and predictive toxicology.

To support a wide range of nanoinformatics, modelling and decision support tools that require organised high-quality datasets on which to run, NanoCommons is providing data curation, integration and storage services to national and EU-funded projects to incorporate currently disparate datasets into an Open Access, federated Knowledge Commons platform.

Transnational Access Partners



UNIVERSITY OF BIRMINGHAM













Transnational Access Guidelines

NanoCommons Transnational Access (TA) provides funded access to state-of-the-art nanoinformatics and data management tools and services, and the expertise to implement them successfully.

Researchers from academia and industry are invited to access the NanoCommons services, facilities and knowledge to advance their work, solve problems and take their research to the next level.

Access to the platform and the supporting tools is via 6-monthly calls for funded Access. All applications are reviewed and ranked for suitability for funding (fit to NanoCommons research areas, evidence of need, quality of the research that will be enabled etc.) – full evaluation criteria are in the User Handbook on the website.

NanoCommons Covers the TA project costs as follows:

- Research effort (from the TA expert)
- International travel for the User to visit the TA expert to discuss the research plan or results (1 short visit, if needed – online discussion will be encouraged)
- Local accommodation while at the TA partner site
- A per diem to contribute towards living costs

NanoCommons Core Values



Integrity: We believe in building trust, strong personal relationships and long-term collaborations to support sustainability of nanosafety knowledge and resources.



Quality: We are dedicated to continuously expanding the state of the art and improving high quality tools and services for data production, acquisition and analysis.



Innovation: We strive to identify, develop and implement the tools which will help all aspects of research and contribute to solving the problems of the nanosafety community.



FAIR Data: NanoCommons is committed to FAIR data principles and aims to promote cross-field (academia, industry, regulatory) collaboration and voluntary knowledge exchange.



NanoCommons
Nano-Knowledge Community

The European Nanotechnology Community Informatics Platform:
Bridging data and disciplinary gaps for industry and regulators
www.nanocommons.eu

NanoCommons is developing tools to ensure that nanosafety data, old and new, is **accessible** to **scientists** for development of *in silico*, hazard and risk assessment models, for **industry** to support *safe-by-design* product development, and for **regulators** to enable science-based decision making.

We Develop, You Access



Experimental Workflows
Design & Implementation



Data Management,
Processing & Analysis



Data Visualisation
Predictive Toxicity



Data Storage
& Accessibility



10
Countries Worldwide



14
Dedicated Partners



30+
Experts

A Dynamic Team



A2 Agenda of the Spring School in Alessandria, Italy (May 2019)

22nd May

16:00

Salutation from the authority & general directions about venues and meeting

16:15

Keynote Dr. Stela Pruneanu | *INCDITIM, Cluj-Napoca (RO)*
Synthesis of graphene-based nanomaterials with applications in the electrochemical detection of biomolecules.

16:45

Scientific Talk Dr. Caterina Rinaudo | *DISTI-UPO, Alessandria (IT)*
Evidence of asbestos fibers and/or "asbestos bodies" in tissues from patients with working/environmental exposure and affected by severe diseases of the gastrointestinal system.

* Arrival to the meeting venue in the afternoon (private shuttle from Malpensa possible)

17:15

Espresso Coffee Break.

17:30

Project Coordination Meetings

20:30

Welcome dinner at *La Luna in Brodo*, regional cuisine restaurant, Alessandria town.

23rd May

09:00

Moving to the Winery Resort "*La Tenuta Faletta*" in Mandoletta

09:30

Keynote Prof. Alberto Bianco | *IBMC, UNISTRA, Strasburg (FR)*
Degradation-by-design: can we render carbon nanomaterials more biodegradable?

10:15

Espresso Coffee break

10:30

Dr. Iseult Lynch | *UoB, Birminham (UK)*
Hands-on session on data management for ESR and ER scientists

13:30

Lunch & Relax

15:00

Keynote Dr. Ruth Moeller | *LIST (LU)*
EU regulation on nanomaterials.

15:45

Q&A tail + break

16:30

PhD student and ESR Session

17:15

The tail of a nanoscientist.

Original comic piece by Calogero Marchese, Ecole Jacques Lecoq, Paris (FR)

18:00

Wine Tasting experience with a sommelier and some food

19:00

Coming back to Alessandria

20:30

Social dinner at *Li Buoi Rossi Hotel Restaurant*, Alessandria town.

24th May

09:00

Keynote Dr. Iseult Lynch | *UoB, Birminham (UK)*

The European Nanotechnology Community Informatics Platform: Bridging data and disciplinary gaps for industry and regulators.

09:45

Keynote Dr. Antreas Afantitis | *Novamechanics LTD, Nicosia (CY)*

NannoSolveIT Nanoinformatics Models & Tools for the Risk Assessment of Nanomaterials.

10:30

Q&A tail + brake

11:00

Keynote Dr. Juan Antonio Tamayo Ramos | *ICCRAM-UBU, Burgos (ES)*

& **Dr. Francesco Dondero** | *DISTI-UPO, Alessandria (IT)*

Omics technologies for the assessment of nanomaterial risk.

11:45

Post-Doc Session

12:15

Round table

Discussion on nanosafety regulation and scientific aspects.

13:00

Buffet Lunch & Relax

14:30

Closure of the scientific sessions and farewell

15:00

Visit of the research infrastructures

* This is a provisional program, and activities may change. Contact us or follow us on our web and social networks to confirm

Organization

Lead organisers:

Dr. Francesco Dondero (UPO)

Dr. Juan Antonio Tamayo-Ramos (UBU-ICCRAM)

Dr. Iseult Lynch (UoB)

Dr. Spyros Yannopoulos (FORTH)

www.disit.uniupo.it

Follow the event:

#PiemonteSS19



Consortium



A3 Agenda of the US-EU Nanoinformatics meeting in Aix-en-Provence, France (June 2019)

Final Alignment and Integration of the NanoFASE Database with the US Nanoinformatics Knowledge Commons (NIKC) Database Structure

Centre de Recherche et d'Enseignement de Géosciences de l'Environnement
TECHNOPOLE ENVIRONNEMENT ARBOIS-MEDITERRANEE BP80
13545 AIX en PROVENCE, CEDEX 04, FRANCE
27 & 28 June, 2019
(Times in CEST)

Expected attendees include representatives of:	Purpose of meeting:
Team Helium Duke University (CEINT) CEREGE UKRI-CEH (NanoFASE) University of Birmingham (NanoFASE) University of Uppsala (NanoFASE) Biomax (NanoFASE)	The goal of this meeting is to agree upon clear and sustainable workflow processes that will support data integration, new research collaborations, and continued growth of comparable curated datasets utilizing the NIKC database structure and established eNanoGrammar curation procedures. We will leave the workshop with a shared and agreed understanding of the sequence of steps, roles and responsibilities, and the technological and time requirements for both contributing to and accessing the growing "NIKC+" dataset. We will build upon integration projects already underway with NanoFASE, SERENADE, eNanoMapper, GRACIOUS, SAbyNA and GOV4Nano, with a view to how this incorporates into larger infrastructure initiatives of NanoCommons and EUON. As US-based funding for the NIKC sunsets, the CEINT team is committed to ensuring that its global partners have everything necessary to adopt, adapt and integrate the nanoinformatics resources and processes that have been developed.

Agenda legend

Round robin sessions
Presentation/demonstration sessions
Group discussion sessions

Thursday 27 June, 2019	
9:00 AM – 9:15 AM	Introductions
9:15 AM – 9:45 AM	Framing the Workshop and Expectations
9:45 AM – 10:15 AM	Introduction of NIKC concept map & ontology usage, with roles & functions
10:15 AM – 10:45 AM	Presentation of "original" development process and roles for NIKC curation
10:45 AM – 11:00 AM	Break
11:00 AM – 12:00 PM	Group discussion of priority challenges to address in scaling up/handing off
12:00 PM – 1:30 PM	Lunch
1:30 PM – 3:00 PM	Group discussion of next steps for scaling and integration
3:00 PM – 3:15 PM	Break
3:30 PM – 4:30 PM	Prepare clarifying questions for those not in the room with roles
4:30 PM – 4:45 PM	Open brainstorm: <ul style="list-style-type: none"> <input type="checkbox"/> App wishlist? Favorite question to address? <input type="checkbox"/> Key collaborations (e.g. NanoSolveIT, Nanoinformatics) <input type="checkbox"/> Datasets? Contenders to add to the NIKC-compatible base?
4:45 PM	Adjourn
Friday 28 June, 2019	
9:00 AM – 10:45 AM	Review of Day 1 "idealized" process flow with remote participants
10:45 AM – 11:00 AM	Break
11:00 AM – 12:00 PM	Create guidance bullet points for communication to various roles
12:00 PM – 1:15 PM	Lunch
1:15 PM – 2:30 PM	NanoFASE Mesocosm focus hour
2:30 PM – 3:00 PM	Next Steps Round Robin: roles, plan, and action items before we leave
3:00 PM	Adjourn