

Engineering Biology Metrics and Technical Standards for the Global Bioeconomy

Europe/Africa Workshop Agenda

25-27 September 2023

Venue: 5 Grand Place, 1000 Brussels, Belgium

Workshop Objectives:

Plenary presentations and discussions in breakout groups will aim to provide the following:

- An overview of the current bioeconomy strategy within the European/African context.
- An understanding of the current state of standards and metrics within the bioeconomy strategy.
- An agreed sense of the future role that standards and metrics can play in accelerating the growth of the bioeconomy.

Participants will aim to identify regional priorities and define a strategy that will lead to a roadmap for developing global standards and metrics for engineering biology.

Please see last page for definitions of key terms and confidentiality guidelines.

Monday 25 September

5 Grand Place, 1000 Brussels

17:30 – 20:30	Welcome Reception An opportunity to build connections and begin discussions with fellow participants. Drinks and canapés will be served. 18:30: Welcome and introductory remarks <i>Paul Freemont (Imperial College London, UK)</i> <i>India Hook-Barnard (EBRC, USA)</i> <i>Andrea Hodgson (Schmidt Futures, USA)</i>
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Tuesday 26 September

5 Grand Place, 1000 Brussels

Time	Activity
08:30 – 09:00	<i>Registration (second floor)</i> <i>Tea/coffee available</i>
09:00	<p style="text-align: center;"><i>All presentations and panel sessions will take place on the first floor.</i> <i>Lunch and refreshments during breaks will be provided on the second floor.</i></p> <p>Welcome to Day 1 Overview and objectives of the workshop. <i>Andrea Hodgson (Schmidt Futures, USA)</i></p> <p>Developing Metrics and Setting Standards: presenting key definitions for the workshop, describing past and failed efforts, and the purpose for the current effort. <i>Paul Freemont (Imperial College London, UK)</i></p> <p>Introduction to the International Organization for Standardization (ISO) <i>Elena Ordozgoiti (UNE, Spain)</i></p>

09:30	<p>Strategy for the bioeconomy: setting the scene for the European context <i>Peter Wehrheim (European Commission)</i></p>
10:00	<p>Panel 1: The European strategy: how can Europe advance its position in the global bioeconomy? <i>Moderator: Roel Bovenberg (DSM, Netherlands)</i> <i>Panelists: Deimena Drąsutytė (HERLab, UK), Martin Langer (BRAIN Biotech, Germany), Vítor Martins dos Santos (Wageningen University, Netherlands), Peter Wehrheim (European Commission)</i> <i>Discussion Questions:</i></p> <ul style="list-style-type: none"> • What is currently limiting the full realisation of your ambitions; what are the barriers to innovation? • What solutions could there be to overcome such limitations and barriers? • What do you consider as strengths of the European bioeconomy? • How can we convince political stakeholders that the bioeconomy is the right field to invest in? • What are the main barriers to adoption of standards in Europe, and how do we foster future adoption?
11:00	<p><i>Break</i></p>
11:30	<p>The current state of standards and metrics within biotechnology <i>Jens Erik Nielsen (Novozymes, Denmark)</i></p>
12:00	<p>Panel 2: The importance of standards and metrics within the European biotechnology industry: why and where are they needed? <i>Moderator: Gilles Truan (CNRS, France)</i> <i>Panelists: François Bertaux (Lesaffre, France), Patrick Rose (SPRIND, Germany), Alexandra Whale (LGC Group, UK)</i> <i>Discussion Questions:</i></p> <ul style="list-style-type: none"> • Where are standards and metrics most needed; where would have the biggest impact? • Would standards and metrics help accelerate commercialisation? • Would implementing standards hamper technological developments? • Are standards and metrics equally important for large companies and startups? • Are standards and metrics equally perceived in a research lab and industry?
13:00	<p><i>Lunch</i></p>
14:00	<p>The need for regulation and standardisation for the bioeconomy 2.0 <i>Virginia Claudio (SpinGaia, Belgium)</i></p>
14:30	<p>Panel 3: Biosafety standards and metrics <i>Moderator: Steffi Friedrichs (AcumenIST, Belgium)</i> <i>Panelists: Virginia Claudio (SpinGaia, Belgium), Michele Garfinkel (Germany), Natalio Krasnogor (GitLife, UK), Markus Schmidt (Biofaction, Austria)</i> <i>Discussion Questions:</i></p> <ul style="list-style-type: none"> • What is the status quo of biosafety standards and metrics? Where are we, where do we need to go? • What are the challenges and roadblocks to further developing biosafety standards? • How should we identify the “best” metrics for biosafety? • What is the relation between biosafety and consumer confidence? What is needed to gain consumer trust? • How can initiatives like the “Biocontainment Finder” contribute to the identification of proper

	standards and metrics? Biocontainment Finder – Standardsinsybio
15:30	<i>Break</i>
16:00	Risks and challenges in the alternative food industry: experiences from Supplant <i>Jeremy Bartosiak-Jentys (The Supplant Company, UK)</i>
16:30	Panel 4: The need for standards and metrics for alternative food systems and industry <i>Moderator: Fayza Daboussi (INRAE, France)</i> <i>Panelists: Jeremy Bartosiak-Jentys (The Supplant Company, UK), Lars Højlund Christensen (Chr Hansen AS, Denmark), Adrian Leip (European Commission)</i> <i>Discussion Questions:</i> <ul style="list-style-type: none"> ● On <i>what</i> do we need standards and metrics? ● How would standards and metrics assist in product acceptance by i) consumers, ii) customers and iii) regulators? ● If widely accepted standards and metrics for Engineering Biology were brought in, how would it change the way you approach R&D projects? ● What are the main risks for SMEs in getting new products to market, and how could standards and metrics help? ● What immediate next steps do you think are required from i) the Engineering Biology community and ii) customers / regulators?
17:30	Recap of Day 1 <i>Paul Freemont (Imperial College London, UK) and India Hook-Barnard (EBRC, USA)</i> Plans for Day 2 <i>Juliette Malley (Imperial College London, UK)</i>
18:00	Meeting adjourns
19:30	Workshop dinner Venue: NH Collection Grand Sablon hotel, Rue Bodenbroek 2, 1000 Brussels

Wednesday 27 September

5 Grand Place, 1000 Brussels

Time	Activity
09:00	Welcome to Day 2 Overview and Objectives <i>Paul Freemont (Imperial College London, UK) and India Hook-Barnard (EBRC, USA)</i> Instructions for Breakout Sessions <i>Juliette Malley (Imperial College London, UK)</i>
09:30	Breakout Session 1 1.1 Biomass and sustainability <i>Leads: Payam Ghiaci (RISE, Sweden) and Merja Penttilä (VTT, Finland)</i>

	<p>1.2 Data standards and access: best practices for data sharing <i>Leads: Misha Delmans (Colorifix, UK) and Laura Sherlock (bit.bio, UK)</i></p> <p>1.3 Translating and coordinating with existing standards and benchmarks <i>Leads: Davide De Lucrezia (Officinae Bio, Italy) and Jane Romantseva (NIST, USA)</i></p>
11:00	<i>Break</i>
11:30	<p>Breakout Session 2</p> <p>2.1 Standards and metrics for engineered biology as the process <i>Leads: Mart Loog (University of Tartu, Estonia) and Emily Aurand (EBRC, USA)</i></p> <p>2.2 Standards and metrics for engineered biology as the product <i>Leads: Cai Linton (Multus Bio, UK) and Kate Royle (Better Dairy, UK)</i></p> <p>2.3 Safety, sourcing, traceability, public perception <i>Lead: India Hook-Barnard (EBRC, USA)</i></p>
13:00	<i>Lunch</i>
14:00	<p>Report Back from Breakout sessions (10 mins each)</p> <p>1.1 - Biomass and sustainability</p> <p>1.2 - Data standards and access: best practices for data sharing</p> <p>1.3 - Translating and coordinating with existing standards and benchmarks</p> <p>2.1 - Standards and metrics for engineered biology as the process</p> <p>2.2 - Standards and metrics for engineered biology as the product</p> <p>2.3 - Safety, sourcing, traceability, public perception</p>
15:00	<p>Plenary Discussion and Next Steps <i>Paul Freemont (Imperial College London, UK)</i></p>
16:30	Workshop adjourns
16:45 – 17:30	<i>Task-Force debrief and meeting (second floor)</i>

Definitions:

Standards: (1) A published document that provides specifications, guidelines, characteristics, or procedures that can be used consistently, and are designed to maximize the reliability or to ensure that materials, products, processes, and services are fit for their purpose. (2) Requirements that establish the fitness of a product for a particular use and may address product features, performance, quality, compatibility, or other product attributes.

Metrics: The measurements made towards assessing the (technical, economic, social, etc) viability of a product or process.

Metrology: The science of measurement and its application.

Upstream processing: The first phase of the bioprocess from cell line development, optimization, and cultivation to the fermentation process.

Feedstock: Raw material to supply or fuel a machine or industrial process.

Downstream processing: The part of a process where the upstream product is recovered, concentrated, and purified to meet quality requirements.

Scale up: The steps involved in transferring a manufacturing process or section of a process from laboratory scale to the level of commercial production.

Process development: The exercise of creating a means to manufacture a given product in a given quantity.

This meeting will run under [Chatham House Rule](#).