



BIOVOICES

CONNECTING BIO-BASED FORCES
FOR A SUSTAINABLE WORLD

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CONNECTING BIO-BASED FORCES FOR A SUSTAINABLE WORLD



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BIOVOICES

CONNECTING BIO-BASED FORCES
FOR A SUSTAINABLE WORLD

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1. INTRODUCTION

1.1 BACKGROUND

The bio-based economy refers to the usage of renewable natural resources such as wood and crops for fuel and materials. So far, the transition towards a European bio-based economy in terms of market uptake is proceeding slowly due to several innovation challenges (Overbeek & Hoes, 2018). With market uptake we refer to the development phases of business cases with 95% mature products, go-to-the market with mature products for niche groups, and acceleration to more mainstream groups.

A reason why the transition towards a bio-based economy is hindered is that future users, such as brand owners, governments and consumers and other stakeholders, such as citizens and opinion makers, are marginally involved (Overbeek & Hoes, 2018). This is probably due to the focus on technological challenges of new bio-based applications instead of looking to the needs and requirements of the market and the society (the social dimension of innovations). This lack of interaction and communication between the developers of bio-based applications and external stakeholders is a missed opportunity for aligning bio-based application to the needs and desires of users and other stakeholders, which is essential for achieving a market uptake of bio-based applications.

Therefore, some dedicated H2020 projects pay more attention to stakeholder involvement in the bio-based economy. The overall aim of BIOVOICES is to ensure the engagement of all relevant stakeholder groups to address and tackle bio-based related challenges by establishing a multi-stakeholder platform (www.biovoices.eu). BIOVOICES does this by establishing quadruple helix (i.e. civil society, businesses, policy makers, research and education) Mobilisation and Mutual Learning events (MML). The MML approach includes workshops in which the quadruple helix actors participate and in which all actors are committed to solve complex problems based on sharing different perspectives, ideas, knowledge and experiences in open dialogues. This is not an easy task, because it requires some degree of shared objectives and some common language among stakeholders.

1.2 AIM OF MML WORKSHOPS

In the ten BIOVOICES partner countries (plus Belgium) 2 national and 4 regional MML workshops will be organised rooted to specific local bio-economy situations. Moreover, 4 European MML workshops will be organised to address challenges that are perceived as relevant by the stakeholders at European (and international) level.

In total 70 MML workshops will take place before the end of 2020. The main objective is to **broaden the network of people engaged in the bio-based economy and to further a shared understanding, actionable knowledge and potential solutions for the innovation challenges** that hamper the development, take-off and acceleration of bio-based applications. The outputs from the MML workshops will be aggregated so that policy advice can be formulated and presented to the European Commission and shared with agencies and stakeholders involved in bio-based sector and in delivering their own events.

1.3 AIM OF THIS DELIVERABLE

WP3 aims to create a framework for the MML approach. Therefore several tasks have been done with the following resulting deliverables. In D3.1 the main barriers and opportunities for the development of bio-based value chains have been reviewed (Overbeek & Hoes, 2018). In D3.2 based on the interviews from all partners, data have been analysed to identify stakeholders' interests and motivations for participating in MML workshops (Diogo & Urze, 2018). In D3.3, related to the bio-based products (applications), innovation challenges have been formulated based on stakeholders' interests and the reviewed barriers and opportunities (Albertini et al., 2018). Task T3.4 (which results in D3.4) aims to develop the guidelines for the BIOVOICES MML approach.

The overall aim of D3.4 is **to develop the guidelines for the design of the BIOVOICES Mobilisation and Mutual Learning (MML) approach** that are relevant, attractive and motivating for the quadruple helix stakeholders to contribute and finally to deliver impactful outcomes (policy recommendations, action plans, agreements, further collaboration, etc.). Therefore T3.4 consists of 3 tasks, of which the latter is the most important:

- Mapping the plans for improvement of bio-based themes based on the different stakeholders' interests and contributions.
- Identifying themes for mutual learning to foster bio-based value chains in each participating country.
- Developing guidelines for the design of the BIOVOICES MML approach.

The guidelines in D3.4 in tandem with the challenges addressed in D3.3 will flow into the document "BIOVOICES Methodological approach for Mobilisation and Mutual Learning" (D4.4) to be used by the partners to design the MMLs at different levels. Compared to the planned objective of T3.4, the present D3.4 focuses more on the MML guidelines and less on mapping plans for improvement, which have been elaborated already in D3.3 and resulted in 12 challenges. For T3.4 the partners indicate which of them are applicable for their country.

Paying more attention to the guidelines on how to approach MML in the bio-based economy is not a luxury, but a necessity, because D3.1 (Overbeek & Hoes, 2018), D3.2 (Diogo & Urze, 2018) and D3.3 (Albertini et al., 2018) indicate that the quadruple helix actors hardly know each other and they hardly communicate with each other. Consequently, it is not easy for them to share an analysis of the problem and how to solve it.

Therefore D3.4 focuses on assisting the BIOVOICES partners with the preparation of MML workshops. This guide provides an overview of the bio-based innovation challenges in each partner country relevant to be discussed (Chapter 2). Next, considerations for organising MML workshops are provided (Chapter 3). Also designs for the set-up (Chapter 4) and specific techniques to animate the dialogue are given (Chapter 5). Subsequently, recommendations are made regarding time plan, requiring participants, facilitation, logistics and location (Chapter 6) and a format to fill in the outcomes and outputs from the MML workshops (Chapter 7). D3.4 will end with concluding remarks (Chapter 8).



The overall message of this deliverable is that it requires reflection and action to prepare MML workshops. Therefore, partners are advised to begin timely, i.e. a half a year before the first MML workshop.



2. INNOVATION CHALLENGES FOR MML WORKSHOPS

2.1 INTRODUCTION

In D3.3 twelve innovation challenges have been formulated based on the stakeholders' interests and on the reviewed barriers and opportunities (Albertini et al., 2018). These challenges mainly provide an overview of “constructed” shared problems to enhance the market uptake of bio-based products. With “constructed” we mean that we have argued the motivation of each quadruple helix stakeholder, based on literature search and on interviews with them in the partner countries. We have made the overview without taking into consideration the opportunities of each partner to organise an MML about this in his or her country. Therefore, in this chapter we present an overview of the innovation challenges and the application sectors the 13 BIOVOICES partners consider most important.

2.2 INNOVATION CHALLENGES IN THE PARTNER COUNTRIES

In Table 1a/b we present an overview of the twelve challenges and the application sectors each partner considers most relevant in his or her country to organise an MML. From the indications given by each partner, we may conclude that the following four challenges are most important:

B2 CHANGES IN PURCHASE HABITS

B3 INCREASE THE ADOPTION

C2 INTRODUCE EU & NATIONAL INCENTIVES

E1 ENHANCE LOCAL BIOECONOMY STRATEGIES and ACTION PLANS

An average number of participants also mention the following three challenges:

A3 UP-SCALING

C3 REALISE STANDARDISATION

D3 INCREASE 2G FEEDSTOCK FOR IDENTIFIED BB PRODUCTS

Many partners keep the options open to select application sectors and include them all. Partners who have selected some application sectors focus mainly at:

3. Food packaging, disposable products for catering and events

4. Biofuels and bioenergy

5. Building, construction and restoration, paintings, decorations and furniture.

TABLE 1A RELEVANT INNOVATION CHALLENGES AND APPLICATION SECTORS ACCORDING TO EACH PARTNER

Challenge Partner	1 APRE	2 FVA	3 PEDAL	4 CNR	5 CE	6 LOBA	7 NOVA ID
Country	Italy	Italy	Slovakia	Italy	Estonia	Portugal	Portugal
A1 FIND FIRST CUSTOMERS							
A2 SPECIFY UNIQUE SELLING POINTS (USP)			3, 5		6		
A3 UP-SCALING	1-6						
B2 CHANGES IN PURCHASE HABITS		1-6	3	1-6	1-6	1, 6	1, (2,3,5), 6
B3 INCREASE THE ADOPTION		1-6		1-6	1, 3, 5		
C2 INTRODUCE EU & NATIONAL INCENTIVES	1-6				1-6	1, 6	1, 2, 3, 5, 6
C3 REALISE STANDARDISATION	1-6						
D1 IMPROVE THE ECOSYSTEM TO ENHANCE BUSINESS CASES							
D2 B2B USERS AS FRONTRUNNERS		1-6					
D3 INCREASE 2G FEEDSTOCK FOR IDENTIFIED BB PRODUCTS	1-6		4				
E1 ENHANCE LOCAL BIOECONOMY STRATEGIES and ACTION PLANS	1-6		4, 5	1-6	1 -6	1, 6	1, 2,3,5, 6
E2 BOOST LOCAL DEPLOYMENT	1-6		4, 5	1-6			

Application sectors:

- 1. Cleaning and hygiene, personal care and cosmetics, health and biomedical**
- 2. Textile products, clothing, sports and toys**
- 3. Food packaging, disposable products for catering and events**
- 4. Biofuels and bioenergy**
- 5. Building, construction and restoration, paintings, decorations and furniture**
- 6. Nutraceuticals, environmental bioregulation and biological sensors.**

TABLE 1B RELEVANT INNOVATION CHALLENGES AND APPLICATION SECTORS ACCORDING TO EACH PARTNER

Challenge Partner	8 Q-PLAN	9 FMCC	10 WR	11 MINERVA	12 ASEBIO	13 ICLEI
Country	Greece	Romania	Netherlands	United Kingdom	Spain	Germany
A1 FIND FIRST CUSTOMERS	6				2,5	
A2 SPECIFY UNIQUE SELLING POINTS (USP)			3, 5	1-6		
A3 UP-SCALING		1-4	3, 5		2-4	
B2 CHANGES IN PURCHASE HABITS		1-6	3, 5	1-6	2-5	
B3 INCREASE THE ADOPTION		1-6	3, 5	1-6		3-5
C2 INTRODUCE EU & NATIONAL INCENTIVES	4, 6	1-6	3, 5	1-6	2-3, 5-6	
C3 REALISE STANDARDISATION				1-6	1-6	3-5
D1 IMPROVE THE ECOSYSTEM TO ENHANCE BUSINESS CASES	4				1-4, 6	3-5
D2 B2B USERS AS FRONTRUNNERS						
D3 INCREASE 2G FEEDSTOCK FOR IDENTIFIED BB PRODUCTS	4				4	3-5
E1 ENHANCE LOCAL BIOECONOMY STRATEGIES and ACTION PLANS		1-6			3-4, 6	3-5
E2 BOOST LOCAL DEPLOYMENT						3-5

Application sectors:

1. **Cleaning and hygiene, personal care and cosmetics, health and biomedical**
2. **Textile products, clothing, sports and toys**
3. **Food packaging, disposable products for catering and events**
4. **Biofuels and bioenergy**
5. **Building, construction and restoration, paintings, decorations and furniture**
6. **Nutraceuticals, environmental bioregulation and biological sensors.**

The motivation of the partners for the selected challenges and application sectors to organise an MML can be found in Table 2.

TABLE 2: MOTIVATION OF THE PARTNERS FOR THE SELECTED CHALLENGES AND APPLICATION SECTORS

Partner	Motivation
APRE/FVA/CNR	<p>APRE will be involved together with FVA and CNR in the organisation of the MMLs in Italy. The selection of challenges depends on the possibility to collocate MML events during large scale events identified that have already their communication channels and promotion;</p> <ul style="list-style-type: none"> - the networks and knowledge of University of Naples Federico II involved in feedstock issues (A3, D3); - the regional networks of APRE's members (especially public entities) local Bioeconomy strategies and action plans (C2, E1, E2); - the networks of FVA to organise large scale events about awareness and thrust (B2, B3, D2); <p>APRE will also organise 6 events in Belgium in coincidence with larger scale events at a European or national level (C2, C3). The application sectors will be selected on the basis of the main target of the larger scale event selected.</p>
PEDAL	<p>Challenges 3, 4 and 5 are the most 'mature and concrete' ones in Slovakia which are already subject to many discussions at various levels.</p>
CE	<p>The bio-based products production in Estonia is still in the early stage. Although it is getting more popular (especially in cosmetics and personal care), there is need to raise the awareness among consumers and try change their habits. The main barriers seem to be the lack of feedstock, too many regulations and the higher price compared to fossil-based products.</p>
LOBA/NOVA-ID	<p>Stakeholders in Portugal complain about the lack of a level playing field between biofuels, which benefit from a more structured framework of incentives, and other application sectors. Therefore, sectors boasting an established presence, i.e. cleaning and nutraceuticals, will be selected to enhance their market uptake (LOBA).</p> <p>Ability to interest 4-helix actors and to foster a productive dialogue among them, and to reach consumers that are most afar from the topics concerning the bioeconomy (B2). For C2 and E1 stakeholders would like to discuss the role of the government in implementing EU rules and local policies that encourage bio-based applications, except for biofuels and bio-energy, which is perceived as being a protected niche within the Portuguese bio-economy (NOVA-ID).</p>
Q-PLAN	<p>The bio-based production sector in Greece comprises bioenergy and biodiesel units and some companies with nutraceuticals and personal care products. The main barrier seems to be the availability of feedstock at practically implementable quantities and prices.</p>
FRONTIER	<p>The significant potential for the production of biomass in Romania, obviously underutilised, could be more capitalised upon. Based on that, we have included almost all the bio-based products within our proposed MML events.</p>
WR	<p>Based on the interest and motivation of stakeholders interviewed, availability of bio-based products mainly in food packaging and in building and construction, and shared interest of 4-helix in the take-off stage in the Netherlands.</p>



MINERVA	In the UK the understanding of the bioeconomy and the use and marketing of bio-based products is still in its infancy (without a discussion about the strategy, its implications and opportunities). As a result, we have decided to include all the bio-based products within our proposed MML framework in order to allow maximum stakeholder engagement.
ASEBIO	Based on the interest and motivation of stakeholders interviewed, development of bio-based products in Spain, coordination and dialogue between all stakeholders in order to have cooperation activities for the market uptake.
ICLEI	Increasing the adoption of bio-based products among business users and private customers in Germany is key for upscaling and increases in various applications sectors, especially for packaging. Standardisation is a key issue when it comes to providing the norms for bio-based products. These address not only functionality, safety and material property aspects, but sustainability aspects as well on a case-by-case basis (e.g. through LCAs). Increasing the 2G feedstock is crucial to avoid land use competition for food production, while at the same time, it can locally contribute to problem solving, e.g. with urban waste.



3. MML WORKSHOP PREPARATION

The quality and impact of the MML workshop is dependent on a relevant and clear outcome, output, and topic. Moreover the ability to attract participants who can actually contribute and who have an action potential is crucial. Below we subsequently discuss these elements of an MML workshop that are key for achieving a high quality and impact.

3.1 SCOPE OF MML WORKSHOP

3.1.1 Define the output and outcome of each MML workshop

In the preparation for an MML workshop it is important to define the intended output and outcome, otherwise it is challenging to have a focused and meaningful dialogue that actually sets change in motion. The output refers to the results which are achieved immediately after implementing an activity. The outcome refers to longer-term results, for instance follow-up activities undertaken by specific participants. Both will be filled in the template (see Chapter 7).

To encourage follow-up activities undertaken by specific participants, the MML workshops aim for achieving *actionable knowledge* (Argyris, 2004). Actionable knowledge refers to finding a strategy and an action perspective for the participants. So MML workshops should go beyond merely furthering our understanding by describing and explaining and seek for ways to assist participants in discovering the capabilities to act (i.e. their action potential).

When defining the output and intended outcome of the MML workshop it is important to take into account the 'point of departure' of the participants and the current status of the innovation challenge / application sector that is the focus of the MML workshop. Therefore, we use the multi-step process of (complex) problem solving as shown in Figure 3 (adapted from Bransford & Stein, 1993). The main 3 steps we will address are 1. define problem, 2. analyse problem and 3. generate solutions.

An MML workshop in a context in which the problem is defined and the problem is analysed by the participants can aim to generate potential solutions (see Figure 3). On the other hand, in a context in which the problem is quite new for the participants and a clear understanding of the problem at hand is lacking, a workshop can aim for more analysis of the problem from a quadruple helix perspective. A mismatch between the intended outcome and the current status probably leads to limited participants, frustration (e.g. when participants feel they are repeating steps or sharing the obvious) or low quality results (e.g. when solutions are identified without a clear understanding of the challenge at hand).

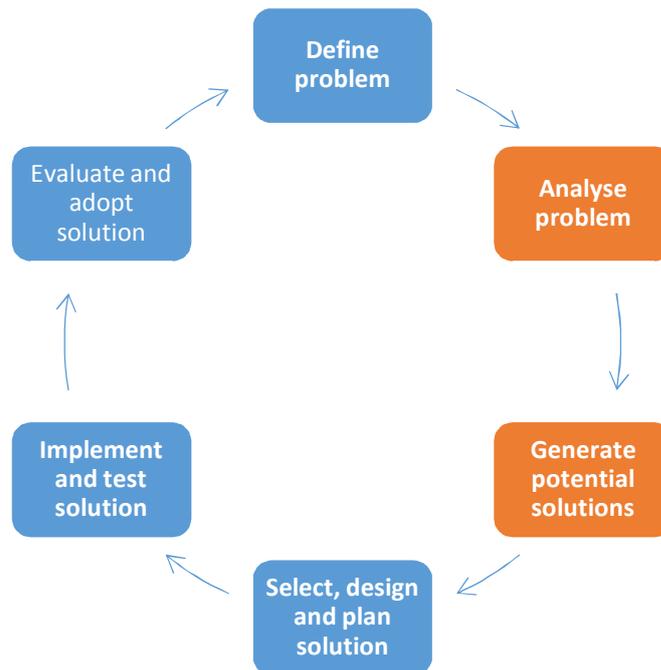


Figure 3: Multi-step process of (complex) problem solving with problem analysis and generation of potential solutions as a focus for MML workshops

3.1.2 Choose and specify the topic for each MML workshop and define the problem

In the preparation for an MML workshop, it is important to formulate a clear topic to define the problem that requires further understanding and to formulate potential solutions. Moreover, the topic needs to be broad and complex enough that it requires a quadruple helix dialogue in order to make progress.

The 12 innovation challenges that hamper the take-off and acceleration of bio-based application sectors (D3.3) are a starting point to define the topic. Therefore, it is wise to choose for each MML workshop the innovation challenge that is most relevant for the region and country in question and to specify the application sector(s) that will be the focus of the MML (or in some situations 2 challenges). Subsequently, this challenge should be modified and contextualised to suit the country's or region's practice, to align the MML workshop with the interests and needs of the participants, in particular with the potential users of bio-based products (governments, businesses and consumers). Furthermore, in case the MML workshop is executed in the context of another event, it should be aligned to the topic of this event (see 3.1.3).

3.1.3 Explore options to link MML workshops to existing events and networks

An option is to align the MML workshops to already existing events and networks. Benefits to 'building on a planned event' include a bigger chance to realise outcomes in terms of follow-up activities after the workshop, easier to attract participants, a planned venue lowering organisation costs and time. Events can range from monthly meetings of bio-based networks to conferences that are held yearly.

The downside of aligning to existing events and networks is that there may be a need to compromise on the set-up, venue and participants of the workshop depending on the guidelines and requirements of the network/event. This is a balancing act between keeping true to the ideal MML workshop set-up and being realistic and pragmatic.

3.1.4 Select participants for each MML workshop

MML workshops are quadruple helix events in which between 20 and 50 people participate. Participants will be divided in subgroups to create a situation in which participants can interact and have a meaningful dialogue (Krueger & Casey, 2015). As each participant has to be competent to contribute to the workshop and because the workshops are voluntarily run, it is crucial that the topic is relevant to the stakeholders in the quadruple helix that are invited.

In addition, MML workshops are usually not open events in the sense that anyone can simply join without registration beforehand. Organising invites and registration can be done using the BIOVOICES platform (see 3.1.5). Selecting invitees is important because there needs to be a good mix of people. And registration is important because the group size and make-up should not be left to chance.

Often participants will be also invited, based on their expertise and experience, in particular helix groups that usually do not go to bio-based events (i.e. civil society and policy makers). Also, an online call can be posted through which people will be able to register, describing their background and area of interest. Alternatively, we noted that MML workshops can be linked to existing events such as conferences or regular meetings of bio-based networks. In these circumstances the recruitment of participants is partly arranged. Even in these situations it is desirable, and some may say a necessity, to arrange some sort of registration as group composition (such as size, background and intentions) are essential for the set-up and eventual quality and impact of the MML workshops.

For some topics an equal distribution of participants from policy making, business, research / education and civil society is feasible. However, for other topics an unequal distribution of representatives may occur as some helix groups have more interest and more to contribute to the topic of the dialogue than other helixes. In these cases it is very important to be aware of the unequal distribution and to make sure that the minority groups have enough space to voice their thoughts. In principle, each helix must be present but the relevant distribution of each helix does not need to be equal.

3.1.5 BIOVOICES platform to inform participants and share results

The organisation of an MML workshop can be supported by using the BIOVOICES platform. In particular, it is possible to:

- Send messages to the members of the BIOVOICES community or an e-mail to people who are not in the community to invite them to attend the MML workshop
- Create a lab where the organiser can provide
 - o a registration form where invited people can register themselves
 - o information about the specific workshop
 - o results of the MML workshop, posted afterwards

In addition, some people can participate remotely. This is possible by using the BIOVOICES platform, if a high-quality Internet connection is available in the locations where the workshop is held and in the location where the participant is. He or she can provide his or her opinion by chat, and can directly join in using live video streaming. After the end of the workshop pictures and results of the workshops should be shared as documents, pictures, videos, etc, in the lab or in the event created. In addition social media such as Twitter can be used to animate the discussion and involve outsiders during and after the event.

3.2 WAYS TO STIMULATE IMPACT AND QUALITY

3.2.1 Stimulating impact

It is wise to engage a bio-based problem owner for the MML events whose challenge is **broad enough that it is recognised as a shared problem among the quadruple helix**. Participants probably have diverse bio-based issues that can fall under the scope of the shared problem. Examples of bio-based issues for market uptake that might trigger participants to attend the MML events are:

- a bio-based start-up who is seeking ways to launch the product;
- a brand owner interested in bio-based inputs/packaging;
- a waste manager or researcher who is seeking for ways to re-value waste/rest streams;
- citizen(s) and policy makers who want to use bio-based applications and would like to know more about their durability, sustainability and the providers.

3.2.2 Stimulating quality

In addition to a problem owner it is wise to have some figure heads (or a guest speaker) to present meaningful input based on expertise or experience with good practices. These figure heads highlight the importance of the MML workshop and can encourage other invitees to join the MML workshop.

All people who attend the MML workshop need to have some form of action potential or otherwise be able and willing to contribute. This can be through information, experience, perspectives on the topic at hand, network, or other resources. People can contribute in various ways. If someone has important insights or perspectives, but is unable to attend, other communication techniques can be used to include their input such as a video interview (live or recorded), or enabling their presence during key moments. Also partners from the BIOVOICES consortium could contribute as a figure head by providing expertise and evidence-based experiences.

Finally, the workshop facilitators should make sure that all the participants are involved in the dialogue. In a dialogue people do not strive for a consensus, but for the deeper understanding of a complex problem in which multiple viewpoints are welcomed. By giving participants the possibility to freely voice their perspective, ideas, experiences and feelings a more creative exchange can occur in which new understandings and possible solutions can be discovered.

Take into account that when people from different backgrounds, with diverse interests, languages and needs, communicate it may also lead to miscommunication with misunderstandings, frustrations, conflicts and inertia (Akkerman et al., 2008; Hoes et al., 2016). As a facilitator it is important to respond to these situations and also to prevent monopolisation of the discussion by one or few participants. This can be done by asking questions, stimulating the discussion of others and summarising the most relevant insights for further elaboration (see Chapter 6 for further tips).

4. MML WORKSHOP SET-UP

A carefully thought-through set-up for the MML workshop is key to achieve meaningful quadruple helix dialogue with actionable knowledge that is needed to generate impact. This chapter explains the general set-up (see 4.1) and provides two designs for MML workshops that can be adapted by each partner country to execute national and regional MML workshops. The first MML workshop design can be used to further ‘analysing the problem’ (see 4.2) and the second design for ‘generating potential solutions’ (see 4.3).

4.1 GENERAL SET-UP MML WORKSHOPS

MML workshops are events of 3 to 4 hours that follow a structure in which plenary and subgroup interaction alternate. The workshop starts with a plenary kick-off, followed by subgroups and closed again in a plenary set-up. Working in subgroups is necessary as a group size of 20 up to 50 people is large enough to have a situation in which everybody can contribute to the dialogue (Krueger & Casey, 2015). Each subgroup should have its own facilitator and its own note taker to be able to share findings beyond the MML workshop. Note takers are also active during the plenary parts of the meeting. In general, the workshop includes three stages, which each roughly need a third of the available time.

- 1) **Setting the scene.** This phase provides clarity to the participants on the context, goal, participants and procedures of the workshop. It also includes a delineation of the topic to be discussed and an alignment on pre-existing knowledge and expectations amongst participants.
- 2) **Exploration.** This is the phase in which new knowledge and ideas are created and as such forms the creative heart of the workshop. A common mistake is to dedicate too much time to this part of the workshop, taking away time from the first and/or last part. Be aware that insufficient time for ‘setting the scene’ will result in lower quality in this phase, while insufficient time for ‘conclusions and follow-up’ will leave participants with doubt about the impact of this workshop core and as a result scepticism about the workshop is likely to increase and motivation to join in future events is likely to decline.
- 3) **Conclusions and follow-up.** To stimulate that the work done during the workshop will create impact after the workshop has finished, this phase is crucial. During this phase participants are invited to converge the new ideas and knowledge from the exploration phase towards priorities, recommendations or action plans. The sharing of subgroup work to create a more general understanding of the workshop results and discussing follow-up activities are also part of this phase.

In Section 4.2 and 4.3 we present two designs for the specific set-up of MML workshops. These set-ups exclude time for walk-in coffee/lunch/snacks, registration and final drinks/food.

4.2 DESIGN 1: ANALYSE PROBLEM AND PRIORITISE

This MML workshop design is for generating a better mutual understanding of the topic by the various stakeholders. This set-up can be used in contexts in which no/ limited contact exists between the various stakeholders and the understanding of the topic by stakeholders is mainly based on their own assumptions.

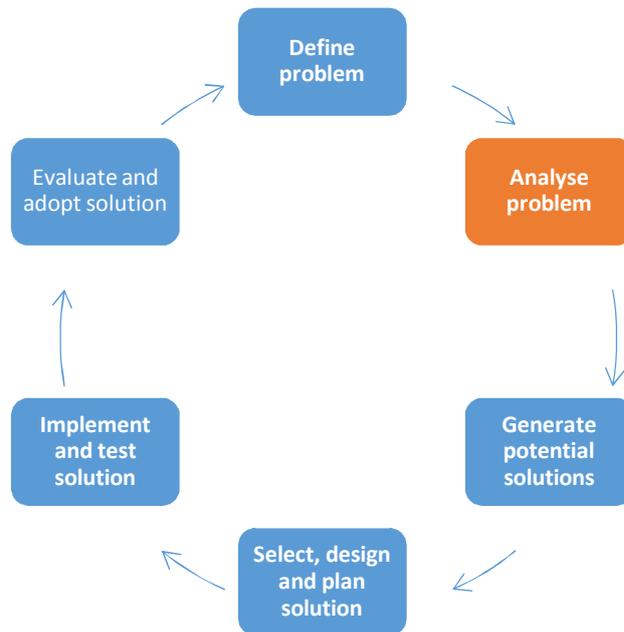


Figure 4: Design 1 with a focus on “analyse problem”

This MML workshop design takes 200 minutes and entails:

[45 minutes] A plenary introduction in which the facilitator shares the aim, rules and programme of the day and an introduction about the topic (bio-based economy innovation challenge, application sector, etc.). The introduction talk should raise the sense of urgency among the participants. Participant interaction is advised to align expectations and to gather ideas related to the topic at hand. A technique that can be used is **(digital) audience response** (5.1) or a short exercise can be done with the participants in the form of a **speed-dating session** (5.1).

[70 minutes] A round of subgroup discussions in which the quadruple helixes are mixed. There are around three to five subgroups, depending on the amount of issues and group size. In each subgroup, all of the helixes are presented and a facilitator is present to guide the discussion. Each subgroup will explore the central innovation challenge and creates an overview of important elements that play a role in it. The subgroups end with a prioritisation of the elements that, according to the subgroup need to be tackled first. Start the subgroup with a 10-minute round in which the participants introduce themselves and their interest in/relationship to the topic. A technique that can be used is a **current reality tree** (5.2).

[20 minutes] Break during which the prioritised root causes and symptoms are collected in 1 (digital) overview.

[45 minutes] In a plenary session all subgroups present their ideas. This could be done through 5-7 minute presentations by each subgroup, preferably by a member instead of the facilitator. An alternative is providing an open space in which participants are free to walk around and visit the various subgroups for more information and an exchange of ideas. Subgroups need to make sure that one member stays at their table to receive participants from other subgroups. The other subgroup members can walk around and visit other subgroups. This informally organised exchange can be structured into rounds, creating designated time for exchange and guaranteeing that people visit

multiple groups. Of course also a mix is possible: groups present plenary in 3 to 5 minutes the root causes and/or effects that should be tackled first. After that participants have the opportunity to gain more in-depth information through visiting various subgroups.

As a next step, participants are asked to prioritise the elements on the long-list through dot voting or rating. You could choose to have the presentation before the break and have people prioritise the issues during the break using a flip chart and markers/dot voting.

After the prioritisation of the long list, participants are asked to identify the stakeholders who should take the lead in working on the specific causes/symptoms. Depending on the available time, they can also be asked for input on (directions for) solutions. For clarity, use different colour post-its or ink to label stakeholders and solutions. A technique that can be used is **(digital) audience response** (5.1) and **dot voting or rating** (5.3).

[10 –20 minutes] To finalise the workshop, a plenary summary of the results is given including the highest priority symptoms and root causes to tackle, the stakeholders that are identified as being leaders in that process and (some of) the (directions for) solutions. You can make this part interactive by asking participants to share their mayor takeaways or conclusions from the workshop. A technique that can be used to guide the dialogue is **(digital) audience response** (5.1).

Don't forget to mention the follow-up that will be given to the workshop: do people receive notes of the results and if so, when? What will be done with these results and how will the participants be given the opportunity to stay involved? Is this a one-off event or will there be follow-up events organised which the participants can join? Before closing the workshop you can do a short evaluation of the workshop itself. Evaluation techniques that can be used include **high five** (5.3) and **race car** (5.3).

4.3 DESIGN 2: GENERATE POTENTIAL SOLUTIONS

This second MML workshop design is for circumstances in which the stakeholders' understanding of the problem generally already includes multiple perspectives. This can be the case when the participating stakeholders are members of roundtables or networks in which the problem has already been discussed. Even in these contexts a brief re-cap of the problem cannot be skipped: time needs to be allocated for creating mutual trust, the confidence that different opinions will be heard and a mutual understanding of the sub-problem at hand. Due to the present knowledge among stakeholders, time is available for also including the next step of generating potential solutions.

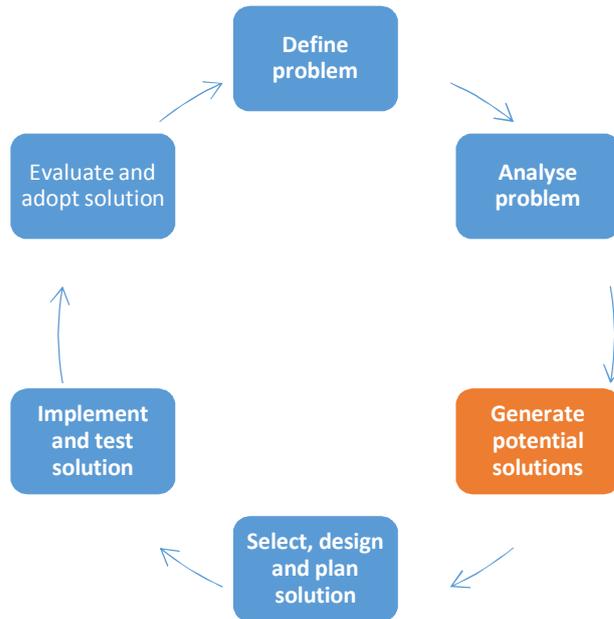


Figure 5: Design 2 with a focus on “generate potential solutions”

This MML workshop design takes 200 minutes and entails:

[30 minutes] A plenary introduction in which the facilitator shares the aim, rules and programme of the day and a short introduction about the topic (bio-based economy innovation challenge, application sector, etc.). To generate potential solutions, the introduction of the challenge should include both an explanation of the importance of the challenge(s) at hand, as well as an understanding of its causes and effects. Participant interaction is advised to align expectations and to gather first ideas related to the topic at hand by asking responses from the audience on questions by letting them raise their hand (or digital **audience response**, see 5.1).

[30 minutes] A plenary presentation in which several ‘problem owners’ pitch the question they want to get input for from the participants. The pitches take 5 minutes each and the audience can ask clarifying questions. Techniques that can be used include **Lightning Talks** (5.1).

[15 minutes] Break in which participants choose the subgroup they want to join.

[90 minutes] Participants can contribute to the problem owners in subgroups and also exchange ideas with other participants. Facilitators are present in the subgroups, and start the subgroup with a 10-minute round in which the participants introduce themselves and their interest in/relationship to the topic. The subgroups can work together for the complete period (Brainstorm) or the input can be divided into separate rounds (world café). Techniques that can be used include **Brainstorm** (5.2), **world café** (5.2).

[15 minutes] Break

[30 minutes] A plenary exchange in which the problem owners share the new ideas so far and ask additional input from the audience. Problem owners can be asked to answer the questions included in the high five or race car techniques. The latter technique can also be used to ask the audience for



additional input on the proposed ideas. Techniques that can be used include **(digital) audience response** (5.1), **high five** (5.3) and **race car** (5.3).

[10 minutes] A plenary evaluation and closure.



5. MML WORKSHOP TECHNIQUES

Below nine specific MML workshop techniques are presented that are introduced in Chapter 4. Partner countries can choose to adjust or even use different MML techniques if they believe that this is needed to achieve the desirable dialogue and outcome. Table 6 illustrates that we present several techniques for each of the three MML workshop parts; 1. setting the scene, 2. exploration, and 3. conclusions & follow-up.

TABLE 6 OVERVIEW OF TECHNIQUES FOR A MML WORKSHOP

SETTING THE SCENE	EXPLORATION	CONCLUSIONS & FOLLOW-UP
1.1 Speed dating	2.1 Current Reality Tree	3.1 Dot voting or ranking
1.2 (Digital) audience response	2.2 Brainstorming (with idea mapping)	3.2 High five
1.3 Lightning Talks	2.3 World Café	3.3 Race Car

5.1 SETTING THE SCENE

5.1.1 Speed dating

Speed dating is also used as an ‘icebreaker’ or team building exercise as it generates multiple brief one-on-one interactions. For the MML workshop speed dating can also be used to generate meaningful dialogue in duos. Speed dating can be done by standing up and walking around. Therefore, the location needs to have room to walk around, such as the area in which breaks are held.

As a preparation for this exercise, at registration participants should be given a badge with a symbol for the helix they represent. Furthermore, the facilitator explains the exercise in a plenary meeting. Participants are asked to have short conversations with 3 people from their own helix whom they don’t know well yet. They will exchange their views regarding two questions:

- 1) what negative effect related to the challenge at hand has according to them the most priority to solve?
- 2) what is/are the most important cause(s) of this effect.

Participants are suggested to take notes as they are expected to use this input in the next exercise. Make sure facilitators walk around to stimulate the speed dating process, keep track of time and guide people to the right location for the next programme part.

5.1.2 (Digital) audience response

An option is to use audience response systems during the plenary part to realise interaction between the presenter and his or her (larger) audience. We do not recommend audience response systems for subgroups. Digital audience response systems are available but offline variants can also be used if the

plenary is a small audience (up to 40). For larger groups digital audience response systems can be used if stable Internet is present and participants have access to digital devices (such as smart phones).

For digital audience response the presenter can use an online platform to pose open or closed questions (such as propositions) within the presentation programme. Avoid fact-based 'quiz' questions with right and wrong answers; focus on opinions instead to stimulate an open and trusting atmosphere. The audience can answer or vote via a website link that they can reach with their own digital device (smart phone, tablet or laptop). The answers to the questions are directly presented on screen in real time. The responses can be collected anonymously, thereby lowering the possible objections for participants to freely share their ideas and perspectives. Well-known software programmes include Mentimeter (www.menti.com), Slido (www.sli.do) and Voxvote (www.voxvote.com).

For an offline variant, people can be given green ('I agree') and red ('I disagree') papers to answer closed questions, or asked to discuss open questions with a neighbour (preferably someone they do not know very well yet) after which some participants will be asked to share their opinions plenary.

5.1.3 Lightning Talks

Lightning talks or pitches are a short presentation of five minutes to create space to discuss multiple topics in a limited time. Examples are the perspectives of each helix group actor with the challenge. Having short presentations forces presenters to share only the essential elements to make a point. The general idea is that the audience will remain more focused during the talks. The formats differ greatly between conferences. Some may encourage the use of slides, some have specific set-ups. Examples of lightning talks formats are Pecha Kucha - 20 slides of 20 seconds each (www.pechakucha.org), and Ignite – 20 slides of 15 seconds each (www.ignitetalks.io).

5.2 EXPLORATION

The following techniques are for subgroups of 6 to 10 people.

5.2.1 Current Reality Tree

A current reality tree (CRT) is designed to accommodate multiple related problems and non-linear processes. Through a CRT a cause and effect network diagram (see figure 7 for a template) is created that provides an overview of the undesirable effect and the root causes of a complex problem. CRT includes a prioritisation and aims at providing clarity to facilitate well-thought through decision making (Goldratt, 1990; Matchar et al., 2006).

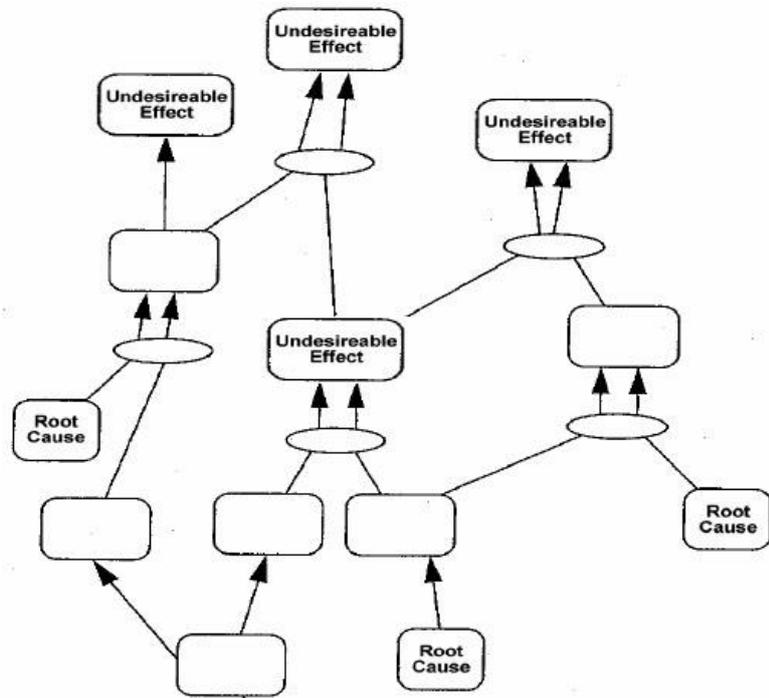


Figure 7: Template of a Current Reality Tree (CRT) (Matchar et al., 2006)

The preparation of a CRT takes 55 minutes and includes five steps:

1 [5 minutes]: The facilitator writes the specification of the innovation challenge central to the workshop on a flip chart. The conversations starts with further exploring the innovation challenge. This is done by asking participants to write down related problems of the innovation challenge on post-its: what are related problems that have been perceived? The rule is one related problem per post-it and to use as many post-its as wanted.

2 [20 minutes]: The facilitator asks the participants to share the different problems and further explores with the participants the key characteristics of the problem. Examples of probing questions are: for whom is it a problem, how frequent does this problem occur, for how long? The post-it with the related problem is placed on a flip chart, accompanied with a summary of the key characteristics that are written on the flip chart. Next the facilitator asks what the undesirable effect (impacts) are of the related problems. These are written on post-its with another colour and these are placed above the related problem.

3 [5 minutes]: Participants are asked to write down on post-its the underlying causes that are the source behind the identified problems (and therefore undesirable effect). Examples of probing questions are: which situations, practices, norms and rules cause (form the basis of) the identified problems?

4 [15 minutes]: The facilitator asks the participants to share the causes they formulated. Clusters are made of similar causes and the facilitator continues with asking for other causes until all the post-its are collected and no new causes are formulated. During this step attention is paid to the correlations between the causes, problems and undesirable effect. On the flip chart these relationships are visualised using arrows. If a problem occurs as a result of a combination of multiple causes, the arrows

connecting the causes and effect are joined by a circle (see Figure 7). If this circle is absent, either of the causes results in the mentioned effect.

5 [10 minutes]: Finally, participants are asked to identify underlying causes, the so-called root causes, that generate different causes for the innovation challenge and are perceived as most important. The facilitator closes the round by briefly summing the results, thanking the participants and introducing the next step in the programme.

5.2.2 Brainstorming

Brainstorming is a creative group technique in which people collectively generate a list of ideas and solutions around a specific topic of interest or problem in a spontaneous way. In the plenary introduction the problem owner already gave a short presentation of the question at hand. During a brainstorm people are invited to think more freely and to voice as many ideas as they have. Ground rules for brainstorming are:

- Go for quantity of ideas not quality
- Suspend judgement
- Welcome and encourage wild ideas
- Add, improve and combine ideas that are already contributed.

Brainstorming takes 90 minutes and includes six steps:

1 [25 minutes]: Start the subgroup with a short round in which the group members introduce themselves. In order to have a common understanding of the central question, the participants can ask questions to the problem owner to improve their understanding of the challenge. When the participants have a clear idea about the key question each participant is asked to re-define the question in a way that reflects the core question and inspires him/her to think of possible solutions. The new questions should start with "How can we". Next, the facilitator writes all the questions on a flip chart and asks the subgroup to come up with their collective brainstorm question. The new brainstorm question is written at the top of an empty flip-chart paper.

2 [15 minutes]: Once the key question is defined, each participant is given a number of post-its to write down all the solution ideas that come to mind in an individual brainstorm of five minutes. Each idea should be placed on a separate post-it. Next the facilitator collects the ideas by asking each participant to share an idea. Then the facilitator asks the other participants if they had a similar idea on a post-it or a related idea that can be clustered with the first idea creating a mind map of the ideas.

3 [10 minutes]: New ideas are likely to arise during the exchange. These are added to the mind map as well. The facilitator continues with the same conversation technique until all initial ideas and associations are collected, shared and clustered.

4 [15 minutes]: Next, the participants are challenged to take the brainstorm a step further and to formulate additional potential solutions. This is done by using exercises that stimulate creative thinking. Examples of exercises include:

- Deviator exercisers that help participants to think about specific aspects of the question and that way stimulate new solutions, or improve existing solutions. Examples include:
 - What-if questions like: What if there was no limit in available resources (time, money, ...) What if the solution needed to be implemented tomorrow?
 - Start from a specific perspective (eg a specific target person or context in which to apply a solution.

5 [10 minutes]: Once a long list of possible solutions has been created, it is time to identify the best ideas. To prioritise the ideas participants are given stickers in three colours: Blue stickers represent ideas that should be done 'NOW': they are easy to implement, low risk and easily accepted. In fact, you wonder why this hasn't been done before. Red stickers represent the ideas that 'WOW': they are new and represent a breakthrough, they are energising and applicable. Yellow stickers represent tomorrows ideas: they are inspiring, and new, but it remains unclear 'HOW' to implement these ideas. Give each participant between 2 and 5 stickers of each colour. The number of stickers participants can divide depends on the number of ideas generated during the brainstorm: the more ideas, the more stickers. Once everyone has placed their votes, the ideas with most votes per colour are listed in a separate flip chart. You can use the COCD box (Figure 8) for this. Dividing ideas in 'NOW', 'WOW', and 'HOW' makes it easier to identify the real innovative ideas.

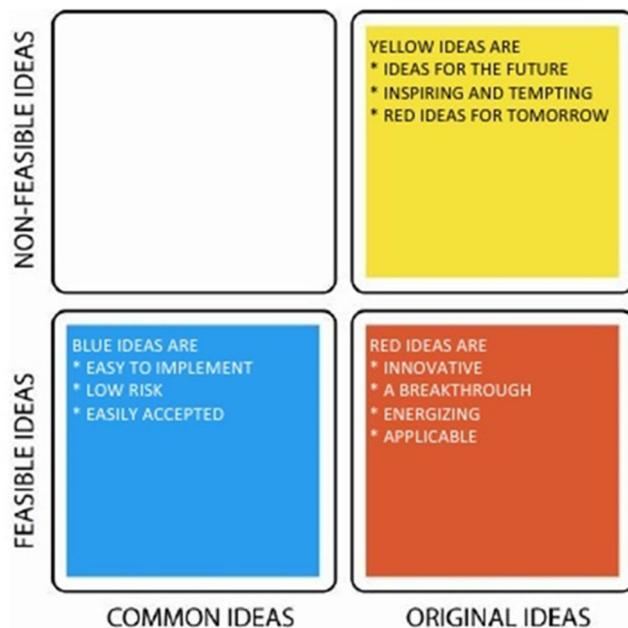


Figure 8: COCD-box (Byttebier, 2002, p. 204)

6 [15 minutes]: Ask the group to mix and match the ideas to design concepts: the various ideas are likely to complement each other. 'Yellow' and 'red ideas' can help to make the 'blue ideas', or 'blue ideas can help to make 'yellow ideas' more feasible. To get this process started the problem owner can identify an idea that he/she finds especially inspirational and can ask the group on how to improve it in a direction that according to him/her needs improving, using the other ideas (see COCD-box and COCD.org). To finalise the brainstorm the facilitators thanks the participants, shares the next step in

the MML workshop and explains to the problem owner regarding what is expected from the problem owner at the plenary exchange (Byttebier, 2002).

5.2.3 World Café

The World Café is a flexible and simple format for hosting large group dialogues. It consists of five general elements that can be adjusted to specific contexts:

- 1) Preparation: Create an informal environment in which subgroups can gather around small, preferably round, tables which are equipped with a flip chart and coloured markers. Optionally you could include a 'talking stick' per table. There should be 4 to 5 participants per table. Often the location is modelled after a café to emphasise the informal atmosphere, including tablecloths and a vase of flowers on each table.
- 2) Welcome and Introduction: The facilitator starts plenary with welcoming the participants and explaining the world café set-up and procedures.
- 3) Small Group Rounds: Then at least three rounds of each 20 minutes of subgroup conversation starts. After each round the participants move to a different table, meeting new participants and having a new conversation. The facilitator stays at the same table and welcomes the new group and briefly summarises the conversation during the previous round.
- 4) Questions: Each round and/or each table has a specific question to be answered by the subgroup. For this specific setting in the MML workshop, it is advised to have tables for each of the problem owners, so at each table a different problem will be discussed. The problem owner also stays at the table. Between the rounds the problem owner together with the facilitator decides whether the new round will focus on identifying new solutions or on elaborating on a specific solution.
- 5) Harvest: After the small group conversations a plenary exchange is organised. Individuals are invited to share insights or other results from their conversations with the rest of the group. These results are captured centrally, for example through graphic recording or via post its on flip charts in the front of the room. In this context, the plenary exchange is part of the next agenda point.

More information on the world café methodology can be found at <http://www.theworldcafe.com>, <http://www.theworldcafecommunity.org/> and <http://www.mspguide.org/tool/world-cafe>

5.3 CONCLUSIONS AND FOLLOW- UP

The following techniques can be done for a plenary audience and will take at about 15 minutes.

5.3.1 Dot voting or ranking

Dot voting and ranking are similar techniques to prioritise ideas in a descending order. The highest number represents the idea with the highest priority, the lowest number represents the idea with the lowest priority. To minimise group think or strategic ranking, you can number the ideas and ask people to write down their ranking individually, before sharing the results. When everybody has marked the ideas, calculate the average score of each idea. Ranking can be used for situations with up to 10 ideas. Otherwise, dot voting is better suitable, when participants select the best ideas by marking them with

a dot (most easy form is by means of a small sticker). The number of stickers people get, depends on the amount of ideas they have to choose from. Normally this is a number between 2 and 5.

5.3.2 High five

A simple evaluation technique in which participants are invited to take a moment and reflect upon the event, think about their own situation and formulate next steps. Participants are asked to take 5 minutes to answer the following questions. The idea is that everyone makes notes for themselves:

- Thumb: What I liked and what inspired me during this MML workshop was ...
- Index finger: What I should be careful about is ...
- Middle finger: What I did not like or found difficult ...
- Ring finger: How it is related to my other experiences ...
- Little finger: A small step I can take when I arrive back home ...

Next the facilitator asks if a, or a few, participants want to share one important thing that they wrote down by the thumb. This is subsequently done for the other finger on the hand (Gordijn et al., 2018).

5.3.3 Race car

The race car is a simple evaluation technique that can be used to look beyond the scope of the MML workshop, into the future. It can also be used as a retrospective evaluation to identify elements that enable change in a specific direction and elements that slow it down.

As preparation print a poster of the picture below or draw it yourself on a large flip chart. Subsequently ask participants 5 minutes to think about:

- 1) What will be pushing the solutions for challenge x forward (engine)
- 2) What will be slowing down the solutions to challenge x (parachute)

When used in a small group you can ask participants to write it down on post-its. Use red/pink post-its for slowing down and green or yellow post-its for speeding up. Discuss the post-its's collectively and place green/yellow post-its's near the engine and red/pink post-its near the parachute. When done plenary just ask everybody to individually note down their answers and ask a few people to share their reflection and the facilitator writes it down on poster with a picture of the race car.

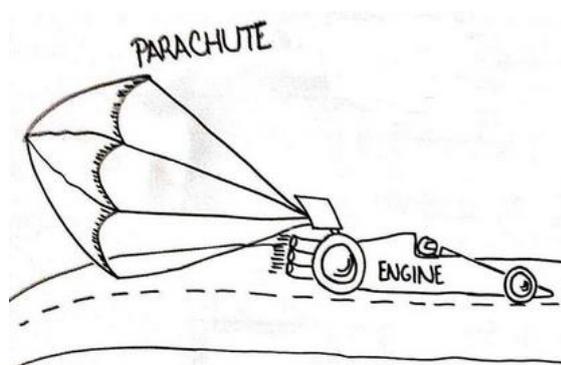


Figure 9: Picture of a race car with engine and parachute to use during evaluation (from www.funretrospectives.com/speed-car/)

6. RECOMMENDATIONS FOR ORGANISATION AND FACILITATION

So far this guide has explained the general preparation for the MML workshops. This chapter provides friendly reminders for the experienced workshop facilitators and practical instructions for less experienced workshop facilitators. They contribute in making the workshops a success, both in making them enjoyable and impactful for the participants, without causing too much stress for the people preparing and facilitating the MML workshop.

6.1 ORGANISATION

6.1.1 Time plan

It is important to start on time with the preparation of the workshops. It starts with scouting for bio-based related networks, events and (policy) topics to align the MML workshop with. Based on this a bio-based innovation challenge (see Chapter 2) can be selected and be reframed to the MML workshop topic.

The preparation of the workshops will probably overlap to some degree due to time constraints. Furthermore, brainstorming and networking for specific MML workshops probably results in several options to select and reframe the topic. Start with further organising the most relevant, urgent and practical MML workshop and keep the other MML workshops warm, but on hold, to be picked-up further after the completion of the first workshop.

When the MML workshop topic and related network is clear, it is time to start with specifying the design/set-up of the workshop set-up, recruiting participants and facilitators, and seeking the venue. A timetable with an overview of the main tasks for the preparation of MML workshops with milestones (MS) is provided in Table 10.

TABLE 10 TIMELINE FOR THE PREPARATION OF MML WORKSHOPS

MONTH	1	2	3	4	5	6
Recruit network or event	█					
Milestone: Decide on topic		Week 6				
Make a list with invitees		█				
Requite facilitators & speakers		█				
Seek venue		█				
Milestone: Book date / venue		Week 12				
Specify workshop set-up		█				█
Milestone: Send invitations				Week 14		
Milestone: Send reminder to invitees with programme						Week 25
Print final guide and formats						█
Organise equipment						█
Organise food, drinks (& gifts?)						█

6.1.2 Linking MML workshop to other events

In Chapter 2 we already noted that MML workshops have to be linked to existing events and networks to make it easier to realise impact / follow-up activities after the workshop and to help in attracting a high quality and quantity of participants. Moreover, usually the venue of the event/network can be used to host the MML workshop thereby lowering organisation costs and time.

Events can range from monthly meetings of bio-based networks to conferences that are held yearly. Identify which regional and national events and networks are present in your country through an internet search (including social media) and by consulting bio-based experts and key figures.

Usually, the organisers of the existing event/network have to be convinced to host an MML workshop. This implies investing time in building a relationship. Moreover, it usefully requires adaption of the MML workshop topic and set-up in such a way that the organisers find it attractive and that it suits their rules and requirements without losing the fundamentals of MML workshops.

Keep in mind that it can be risky to align MML workshops to a large conference because a lot of people may register beforehand but in reality few may attend. To overcome this, ask for a confirmation and make clear to the participants why it is important that they are present.

6.1.3 Recruiting participants

Propose an attractive workshop topic with a clear goal and a programme to attract participants. Make a list of potential participants based on the regional/national bio-based networks, quadruple helix organisations, existing events and contacts of key-figures.

Use a snowball sampling effect to recruit relevant participants. Snowball sampling means asking identified MML workshop participants to propose other individuals that are suited to be invited to the MML workshop.

Moreover, try to include perks in the programme to further persuade people to join the MML workshop, such a tour or excursion in a bio-based factory or shop, inspiring figure heads, nice venue (see tips for venue below), good food, etc. Another way to show appreciation for the participation is to communicate to the participants that their names will be added in the report/recommendations to the EC as contributors. Last, remind participants to confirm their participation a week before the event.

Be prepared to specify the invitation for each helix group. Furthermore, check whether all helix groups are present, because some of them usually do not participate in the main bio-based events. This holds in particular for civil society organisations and for policy makers.

6.1.4 Recruiting facilitators

Recruit facilitators with experience for the MML workshops that have some background knowledge of the topic that is going to be discussed. General expertise includes being approachable, open-minded to participants' opinions, sensitive for tensions and group dynamics. Furthermore (s)he has to be a good listener who can interpret verbal and non-verbal responses but can also manage and guide a lively group discussion and keep the time.

6.1.5 Note takers

Note takers are essential to be able to share findings beyond the MML workshop. Note takers have to be experienced in taking detailed notes during the group discussions (so not only writing down the conclusions and actions but also the conversations that take place). Alternatively the meeting can be recorded and transcribed after the meeting. Limited background noise is required when recording the MML workshop and informed consent by the participants. The note taker can also take pictures of the event. Privacy issues should also be taken into account when taking pictures. People have to sign an informed consent when pictures are saved or published in which they are recognisable.

6.1.6 Location / venue

Reserve the venue upfront. The venue needs to be able to accommodate up to 50 people in one room and to have 4 rooms in which subgroups of helix actors can have an open dialogue. Alternatively, several groups can be placed in a larger room. The venue needs to be neutral, distraction free (no noise), comfortable and accommodate refreshments and snacks. The venue location needs to be easily accessible by car or public transport and easy to find.

6.1.7 What to bring

- Print the facilitator guide and formats (some poster format) beforehand.
- Be early and re-arrange the venue if needed.
- Have refreshments, pens, paper, name tags, flip charts, markers, post-its, recording equipment, camera, batteries/adaptors, laptop etc. available.
- BIOVOICES PR material.
- Bring a thank-you present if an introductory speaker is present. For example a bio-based product (and depending on the situation something for the participants).

6.2 GENERAL INSTRUCTIONS FOR FACILITATORS

The main task of facilitators is both to encourage participation and to control the process. If only participation is encouraged it may result in energetic off-topic discussion that takes too long. If only the process is controlled participants may feel constrained and may stop contributing (Cappeci, 2015). Below we sum-up recommendations for: creating a safe environment in which people are more willing and at ease to speak openly; encouraging discussion; keeping the dialogue focused; and, managing group dynamics.

Create a safe environment:

- Start by communicating the goal, programme and rules of the workshop and explain again what the objective and intended output and outcome of the workshop is. It is easier for people to express themselves when they know what the goal is.

- Be aware of group pressure. Encourage participants to provide alternate views by for example stating: “That is an interesting viewpoint. Let’s also explore some alternatives.”
- Get people talking early and start with an easy to answer and harmless question.
- Use ice breaker exercises to stimulate a safe environment and participant interaction. Three examples can be found in section 5.1 and in BIOWAYS, namely the games the Biochallenge, BIOS game and BioWhaaat? (see <http://www.bioways.eu/bio-learn/serious-games>).

Encourage discussion:

- Show enthusiasm for interaction and complement people that they contribute (especially in the beginning)
- Introduce open questions related to the innovation challenge / topic at hand to open the dialogue
- Provide practical examples as inspiration and to keep the conversation concrete
- Maintain a warm and friendly attitude. Establish eye contact with participants to nonverbally invite them to participate
- Do not judge participants’ responses (neither verbally nor by using body language). Also, do not use positive affirmations such as: “I agree”, “That’s great”
- Use probing questions to get more information such as “Could you say a little more about that?” or “Would you give me an example of what you mean?”
- Don’t rush the group to answer the questions.

Keep the dialogue focused:

- If the group is getting too far off the topic, remind the group of the original question by summarising the responses and then repeating the question.
- If the group is finding the question difficult to answer, rephrase the question.
- When participants address important but off-topic issues, write them down on a post-it and ‘park’ the issue friendly on a separate flip chart to be picked-up after the workshop (and not forgotten).
- Keep the time. Make use of stopwatch or alarm if needed. Indicate 2 minutes up front that time is running out.
- Close the discussion when the goal is reached or when discussion is no longer fruitful.

Manage group dynamics:

It happens often that one or more participants are trying to dominate or even manipulate or monopolise the discussion. Also the opposite can happen; one or more participants who do not contribute to the conversation. The facilitator should be prepared to kindly interrupt in such cases.

When an individual or individuals dominate the conversation facilitators can:

- Avoid eye contact with dominant participants
- Remind the group that everyone's opinion is important
- Stop using too many probing questions with dominant participants
- Ask other participants to respond to a question.

When an individual or individuals are silent

- Make eye contact with quieter participants
- Gently ask quieter participants for their opinions during pauses in the conversation by addressing them by name.

Last, it is important to be aware of potential unequal diversity of the group and to make sure that the minorities have enough space to voice their thoughts. Depending on the situation minorities might include: a helix that is less present, (fe)males, specific age groups, social background, etc. Ideally there is a plurality of voices present, in terms of a good mix of people. Try to identify the type and form of diversity relevant for the specific context and see if it is realistic to take this into account when inviting participants (Ertel & Solomon, 2014).

7. TEMPLATES OUTPUT MML WORKSHOPS

BIOVOICES DATA	
Representative (name, organisation)	
Work package and Task number	
EVENT BIOVOICES	
Venue & date	
MAIN EVENT that hosts BIOVOICES	
Description	
Website	
Main target of quadruple helix groups invited ?	
Invitation strategy for Civil society? If yes, who has been invited and how?	

Title (original language)	
Title in English	
European, national or regional event?	
Audience	
Number of participants per target group - Businesses - Civil society - Policy Makers - Researchers - Intermediates/others	
In case of EU-events: nationalities	
Invitation strategy for civil society? If yes, who has been invited and how?	
Main challenges addressed	
Challenge 1	
Challenge 2	
Motivation for this selection of challenge(s)	
With whom of the target group prepared?	
Material developed (link www.biovoices.eu)	
Speakers invited	



Agenda of the BIOVOICES event

- Summarise the agenda
- Please describe and motivate the focus (common analysis versus finding solutions)

Key points from the event

- Please describe the main points/conclusions from the event

Key points from the main challenge(s) and the context addressed

- Please describe the main points/conclusions from each challenge
- Please describe the relation with the EU/national/regional context addressed

Outcomes per challenge

- New collaborations
- Follow-up of activities
- Recommendations

Evaluation report

- Please describe and analyse any feedback from the event (statistics and comments)
 - o Max. 3 issues that were useful
 - o Max. 3 issues that could be improved

Selected publishable photos

- Insert photos

List of participants

First name	Last name	Organisation	Email



8. CONCLUDING REMARKS

This guide for the MML workshops is primarily written for the BIOVOICES partners that will execute national and regional MML workshops. In addition to the consortium partners this guide can be used as inspiration for other readers that want to organise their own quadruple helix MML events. Establishing a quadruple helix (i.e. civil society, businesses, policy makers, research and education) is not an easy task, because it requires some degree of shared objectives and some common language among stakeholders. Therefore, it is important to consider the design of the meetings quite seriously and whether the current relations among the quadruple helix stakeholders require mainly to analyse the problem or rather to define common solutions.

The MML approach that is presented in this deliverable will be validated, together with the 12 innovation challenges identified, by all quadruple helix stakeholders during stakeholder consultations (from September until November 2018); interactive poster sessions during the 8th International Forum on Industrial Biotechnology and Bioeconomy in Torino, Italy (September 2018); and the focus group with the AB members in Rome (12-14 November 2018). After this, the “BIOVOICES Methodological approach for Mobilisation and Mutual Learning” will be finalised in deliverable D4.4.

Last but not least, keep the MML workshops fun, energetic and impactful by preparing the workshop well so that stressful situations can be minimised.

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Further readings for techniques:

www.bioways.eu/bio-learn/serious-games

<https://ctb.ku.edu/en/table-of-contents/assessment/assessing-community-needs-and-resources/swot-analysis/main>

www.funretrospectives.com/speed-car/

<http://www.ignitetalks.io>

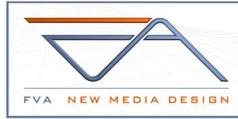
<http://www.mspguide.org/tools-and-methods>

<https://www.pechakucha.org>





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ASEBIO, Asociación Española de Bioempresas
www.asebio.com
Spain



ICLEI Europe
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