



Innovative and Inclusive Democratic Spaces for Deliberation and Participation
HE-101132431

D1.4 General recommendations for piloting

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Summary:

This document connects the iDEM project’s research with its Use Cases, covering User-Centered Design and User Experience methodologies. It emphasizes pilot design, offering guidelines for effective participant recruitment, collaboration, and task structuring while addressing ethical and legal considerations. Recommendations for each iDEM Use Case are based on findings on barriers to participation and intersectionality among participants, aiming to maximize representativeness, enhance deliberation quality, and improve qualitative insights, concluding with final notes on the pilot’s nature and other final considerations.



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Plain Language Summary:

This report links the iDEM project's research with its Use Cases. They describe different situations where the iDEM service can help. The report explains the methods we use. We always focus on what works best for the users. This is called User-Centered Design and User Experience methods. The report focuses on test case design and gives guidelines for how to find participants for the pilots. It gives recommendations for each iDEM Use Case. These recommendations are based on literature and past findings. It also advises on how to work together and organize tasks. It addresses ethical and legal issues. The goal is to maximize representation and improve discussion quality for the target group. The report ends with a summary.

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Acronyms	
iDEM	Innovation and Inclusive Democratic Spaces for Deliberation and Participation
NLP	Natural Language Processing
T	Task
WP	Work Package
D	Deliverable
UCD	User-Centered Approach
UX	User Experience
DoA	Description of the Action (Annex 1 to the Grant Agreement)
HCA	Human Centered Approach
ISO	International Standard Organization
UNICRPD	United Nations International Convention of the Rights of Persons with Disabilities
GDPR	General Data Protection Regulation
IDF	International Design Foundation

1. Introduction

The objective of iDEM [Innovation and Inclusive Democratic Spaces for Deliberation and Participation] is to develop a technological solution that contributes to reducing linguistic barriers to participation and deliberation in democratic spaces. Due to the linguistic complexity in political spaces and processes, different groups of vulnerable or marginalized people may be left behind from having their voices taken into account in decision-making. The difficulties in understanding political information, whether written or spoken, and the barriers to producing similar discourses, exclude people facing linguistic challenges of any kind, from people with cognitive disabilities to migrants who do not master the language. This fact implies gaps in democratic representation, erosion of legitimacy, and effectiveness of decision-making, by not including all the interests of individuals that may be affected.

To address this issue, iDEM aims to develop an accessible tool that utilizes disruptive technologies, such as Natural Language Processing (NLP) and Artificial Intelligence (AI) models. This tool will help make information more accessible and significantly amplify the voices and interests of individuals who are traditionally at risk, ensuring that they are at the center of public debates. iDEM serves to expand and enhance the democratic principles, practices, and aspirations of the European Union both within its borders and beyond.

To achieve this objective, it is necessary, first of all, to carry out an analysis of the linguistic barriers in democratic processes and spaces. The set of Tasks [T] intended to fulfill this is included in Work Package 1¹ [WP1]. This work package is essential because it will guide the development of technological solutions expressly aimed at dealing with the linguistic barriers typically identified in the groups under investigation. Research without developing innovative technologies lacks purpose, while technical solutions without research insights lack direction. The iDEM project bridges these gaps by integrating theoretical and empirical research with technological innovation. This synergy ensures mutual enrichment, making pilot testing a vital component.

This Deliverable [D1.4] titled “General Recommendations for Piloting,” is part of the theoretical works of WP1, gathering it to create a methodological framework on how these pilots should be conducted. It is difficult to overstate the importance of good pilot development as Use Cases aim to adjust the technology as finely as possible to the needs of the people and groups it is intended for. The foundational methodology will focus on placing the actual experiences of end users at the center of the services and technological tools developed in the project. This approach is known as User-Centered Design (UCD) or User Experience (UX).

After describing the foundations of this methodology, the information will be supplemented with the most relevant data from the theoretical work of WP1 and make some preliminary recommendations on the three planned pilots in the DoA [Description of the Action]: Madrid, Bologna, and Barcelona.

2. Connection with the overall project

Since this deliverable is not the result of a specific task, it is imperative to ensure its alignment

¹ Theoretical Foundations: Power Structures, Inequalities, Intersectionality in Deliberative & Participatory Democratic Spaces

with the objectives of WP1, as this ensures its contribution to the general objectives of iDEM and enhances the development of its activities.

This deliverable uses the results from T1.1², T1.2³, and T1.3⁴ to establish key components of the project methodology and analysis. Specifically, it builds on T1.1's theoretical foundations of deliberative democracy to define the methodology for pilot studies (UCD/UX). T1.2 will justify the methodology as optimal for identifying participation barriers through the perspectives of those affected. Finally, T1.3's analysis of barriers by social categories will contribute to the methodology's dense insights for pilot design, ensuring alignment for WP1's workshop and accessibility recommendations. In this way, this document contributes to the global objectives of iDEM.

The User-Centered Design aligns with the intersectional understanding of participatory and deliberative practices in democratic spaces, especially regarding discursive understanding and production. In addition, it contributes to the co-design of a technological solution that makes these practices and spaces more accessible and inclusive for vulnerable and marginalized people and groups. It also contributes to the future evaluation of natural language processing technologies in areas such as simplification and production of discourses, which are crucial for eliminating barriers to political participation. Finally, the UCD/UX methodology is essential for conducting pilots and evaluating the performance of iDEM services on the target audience in real contexts.

Given that the contexts for which iDEM is being designed are spaces of democratic participation and deliberation, the ongoing work of T1.1, corresponding to document D1.1⁵, is incorporated to improve the deliberative quality and results within the Use Cases. As a consequence, this document will also have implications in T1.4⁶, T4.4⁷, and T4.5⁸.

Previous WP1 deliverables, namely D1.2⁹ and D1.3¹⁰ were completed to contribute here. Identifying access barriers including elements linked to extracting qualitative data from focus groups, which already introduces some User Experience elements to learn from. On the other hand, intersectional analysis contributes to giving meaning to said data, serving as a guide to highlight the particular and unique conformation of the identity of each user, whose experiences must be treated with individual detail, this being the true contribution of qualitative analysis.

A final consideration should be made on the complementarity of this document with D4.3¹¹. Here the foundations of the methodology that will guide the use cases are explained: the User-Centered Design or User Experience as a qualitative social research method capable of

² Develop the theoretical foundations for democratic deliberative innovations to remove barriers to access for marginalised people with cognitive disabilities

³ Identify accessibility barriers to democratic participation for people with cognitive disabilities and their marginalisation of democratic spaces.

⁴ Analyze barriers to participation in democratic spaces by gender, ethnic group, type and degree of disability, language, etc.

⁵ Report on epistemic and legitimacy standards.

⁶ Harvesting workshop to create recommendations on how to increase accessibility of the target group

⁷ Prototyping of our solution.

⁸ Pilots Implementation.

⁹ Report on barriers, strategies, and support.

¹⁰ Report on power structure and intersectional barriers in democratic spaces.

¹¹ Guideline for participatory processes.

adequately accounting for the expectations and the actual performance of the developed technologies. On the other hand, D4.3 will address the specific ways in which technological tools will be made available in the three pilots, with the final idea of designing a pre-prototype. In other words: while D4.3 deals with the “what” (the participatory process in which iDEM is integrated), here D1.4 deals with the “how” (the methodology to study what happens and contribute to ensure that user needs are taken into account to improve the development of iDEM).

3. Objective and work plan

This document aims to convert the information currently available from WP1 and translate it into a set of recommendations for piloting. The suggestions provided are general and should be adapted based on the information and decisions made throughout the ongoing research and development process. This process will continue in the coming months and years. Notably, the first Use Case is expected to begin in January 2026, which marks the 33rd month of the project. To best adapt the methodological design, recommendations, and other details referring to the particular realities of each pilot, it is necessary to know the foreseeable state of the services and tools that will be the subject of the test. Likewise, it is crucial to consider the characteristics of each pilot, beyond the DoA specifications. It is important to emphasize the unique nature of this document. Although it is not directly linked to specific tasks and is primarily focused on the scope of WP1, it aims to provide useful insights for future work. This is done while still including relevant contextual information, even if it may only be provisional.

For this purpose, a brief bibliographic review of qualitative methodologies has been carried out with particular emphasis on user-centered design and user experience. Some of the most immediately accessible resources have been used, without the intention of being exhaustive: manuals and references of proven effectiveness in the professional work of the research colleagues of the organization that leads this document. Once we have identified the main aspects of UCD/UX relevant to the overall development of the project, particularly for the development of the pilots, we will proceed from the broadest concepts to the more specific details. First, some general recommendations are directly extracted from the literature and, then, recommendations that are still general but adapted to the state of iDEM's work. To do this, documents D1.2 and D1.3 were revisited to look for keys and identify unknowns. There is a lot of distance between DoA pilots' blueprints and the specific construction of each Use Case. Therefore, this document only aims to bring together two ends that will remain distant to tie a tight knot with them.

4. User-Centered Design or User Experience

This section presents User-Centric Design as a qualitative methodology to implement in the pilots of the iDEM project. Due to the growing interest in the set of principles and techniques that can be included under this approach, its general lines will be presented according to the most updated and referenced bibliography. In this way, its principles, main phases, and techniques will be introduced. A section will also be dedicated to the requirements for

establishing a continuous improvement cycle, as well as the advantages associated with using this method for the development of innovative solutions for democracy. UCD informs the entire development of iDEM, but is especially evident in the Use Cases phase, in which users come into contact with the first versions of the tool. Therefore, first, the basis of this methodology will be discussed from a very general perspective and then the recommendations for pilots will be specified.

4.1. Qualitative Methodology

It is important to highlight the qualitative nature of this methodology. This approach is essential to achieve the highest quality standards to the extent that it is the only one that guarantees a detailed study of the reasons (the “whys”) that would explain the practices or behaviors of each person in each context. Pursuing the understanding of the deep motivations behind the observed behaviors allows us to problematize the solutions offered to tailor the solution to end user's needs, not to the desires of their designers, but to the expectations of the real users. Although quantitative methods can be complementary to provide an ever broader view of the issue (especially on “whats” and “hows”), only qualitative ones make it possible to study cultural aspects without isolating them. This makes it possible to gain awareness of perceptions, emotions, desires, and, consequently, behaviors (Collins & Stockton, 2018).

4.2. Definitions

User-Centered Design (UCD) is a methodology that puts the user at the center of the design. It is based on understanding the context, objectives, needs, and practices of the intended final users, whoever they may be, incorporating them as co-creators in all design phases. This pragmatic definition collects common elements from three different sources: normative, organizational, and scientific.

From a regulatory point of view, the most up-to-date ISO standard (ISO 9241-210-2019: ergonomics of human system interaction, in its part 210: human-centered design for interactive systems) defines UCD as an *approach to systems design and development that aims to make interactive systems more usable by focusing on the use of the system and applying human factors/ergonomics and usability knowledge and techniques*.

On the other hand, from an organizational point of view, the International Design Foundation defines UCD on its webpage as *an approach to design that prioritizes the needs, preferences, and behaviors of the end user throughout the design process. The goal is to create products that are highly usable and meet the specific requirements of users by involving them in every stage, from initial research to testing, ensuring their feedback shapes the final product. This method focuses on improving user experience by deeply understanding users' perspectives*.

Finally, from a scientific point of view, we can refer to the article “Key Principles for User-Centred System Design” written by Jan Gulliksen and others in 2010 which defines UCD as *a process focusing on usability throughout the entire development process and further throughout the system life cycle*.

Taking into account that in the face of the eventual semantic emptying of this methodology and

the consequent rigidifying reaction, and given the nature of this document, from now on we will continue with a synthetic and pragmatic approach, but no less rigorous, that allows us to approximate the accumulated knowledge to the practice.

4.3. Principles of good design

A short heuristic guide to the fundamental principles of this methodology would include the following 10+1 principles (Gould & Lewis, 1985; Cooper, Reinmann, Croning & Noessel, 2014):

- User focus. From the beginning of the development process, the goals of the activity, the work domain, and usage context, along with users' objectives, tasks, and needs, should guide the process. The design must align with the expectations and demands of the end users.
- Active user involvement. Representative users should actively participate in the project from the earliest stages and continuously throughout the entire development process and the system's life cycle. This involvement ensures that the final product truly responds to users' needs and preferences.
- Evolutionary systems development. The development process should be both iterative and incremental, meaning the system evolves gradually through continuous improvement cycles and adjustments. This approach allows the design to adapt as new needs emerge and feedback is collected.
- Clear and understandable design representations. Design representations should be simple and accessible so that they can be easily understood by users as well as other stakeholders, including project managers and other interested parties.
- Frequent and early prototyping. From the early stages and continuously, it is important to develop and use prototypes to visualize and evaluate design ideas and solutions alongside end users. This allows for early adjustments based on direct user feedback.
- Evaluate use in context. Development should be controlled by well-defined usability goals and design criteria, ensuring the system meets user requirements and expectations in their real-world context.
- Explicit and conscious design activities. The development process should include clearly defined design activities, ensuring that each stage is approached consciously and systematically, with a focus on improving the user experience.
- Professional attitude in development. The development process should be conducted by highly skilled multidisciplinary teams, ensuring a mix of skills that covers all technical, design, and usability aspects of the system.
- Usability champions. Usability experts should be involved from the start and participate continuously throughout the entire development lifecycle, acting as advocates for the user experience at each stage of the project.

- Process customization. The User-Centered Design (UCD) process should be adapted and tailored according to the specific characteristics and needs of each organization, allowing for effective implementation in different business or institutional contexts.

All factors that will influence the user's future experience should be developed in parallel, ensuring a comprehensive approach that includes technical, functional, and interaction aspects in the design.

In addition to these general principles, the development of iDEM includes, as explicitly stated in the Document of Action, other principles such as Universal Design aligned with the United Nations International Convention of the Right of Persons with Disabilities (UNICRPD), and legal principles from the General Data Protection Regulation (GDPR) of the European Union.

4.4. Principles of good results.

If previous principles have to do with the method, another series of them has to do with the results of the product or service developed with it. That is, those show the quality of the process and the quality of the result. They are the following (Soegaard, 2020):

- Effectiveness. This is about whether users can complete their goals with a high degree of accuracy. From a general point of view and from the iDEM perspective, much of the effectiveness comes from the support provided to users when they interact with the solution provided. As long as there is not a single way to provide support, in each case, the most important thing is to be as informative as possible in a meaningful way to the user's needs: the clearer and simpler the language is, the more likely that the information will have the right impact. Redundancy can sometimes be beneficial as having multiple paths to the objective means being more likely to get there.
- Efficiency: this time is related to the costs of getting things done. It is important to provide a way forward to get things completed, so redundancy may be balanced with simplicity, as frustration arises from circulating the solution without solving the problem faced.
- Engagement: It means how users feel about using the product or service provided. If it is pleasant and gratifying, it is well-designed. Although aesthetics matter here, many other things are involved not only to look nice but, more importantly, to look right. This can be said for the iDEM service that is going to be tested but only for the whole piloting process: transparency and trustworthiness are crucial factors to maximize the probability of success.
- Error tolerance. It does not matter how well something is designed as it is impossible to eliminate errors. Taking that as a given fact, what should be done is to minimize errors and, even more importantly, to ensure that users can easily recover from errors and get back to their objectives. To do that, among all previous considerations, it is a good idea to assume everyone is going to do things unexpectedly for them to do, so it is important to design some sort of mitigation plan to prevent users from blocking or panicking.

In short, pilot activities require users to learn how to handle what is going to be tested. The best and only way to do this is by matching users' existing social and mental models with a prototype

specifically designed to serve them.

Additionally, it is advisable to extend good practices to successfully develop iDEM in all its phases. This is precisely the objective of this document: to facilitate interdisciplinary work on this methodology among all members of the Consortium to transfer the partial results of this innovative development cycle to all the agents involved in it and translate the reality of the users into technical recommendations. That improves iDEM solutions by adapting them to the linguistic barriers as they present themselves in the real contexts of the affected people.

4.5. Misconceptions

An additional way to clarify what User-Centered Design consists of is to eliminate possible misunderstandings regarding other approaches that, although they involve end users in some way, do not occupy the center of the development process (Ambrose & Harris., 2010).

Projects aimed at developing solutions often prioritize the industry's innovation demands, placing this need at the center of their process. The needs of the end users are an annoying obstacle to development. This is not, and cannot be the iDEM case.

Another approach to avoid is the one that uses user experience to evaluate the capabilities of the developed solution, without paying attention to the personal and qualitative evaluation of users in pilot tests. It is expected to include people in the prototype testing phases, but typically, their role is limited to being mere "human testing machines" of the developed product. Under these conditions, what is at the center is not the user experience, but the response of the proposed solution to the input of its testers. Another possibility, which may or may not be combined with the previous one, is that the role of end users is reduced to their inclusion at a moment or a series of more or less specific moments. In this way, the centrality that, in each case, people and their specific needs could occupy is displaced by not occupying the center of the process in perpetuity. In any of these cases, it is particularly worrying that checks are carried out without the fully informed knowledge and consent of the people performing them. This is not the case of iDEM either, since the need to overcome barriers for participation is the main worry of the theoretical tasks that are being developed, since users are true co-creators of the solution from the beginning to the end of the project, and because the process is ruled under strict legal conditions and constant ethical advice.

4.6. Phases

Although there is no universally valid consensus on the phases that should rule user experience-based design processes, the five-phase conceptual model (Wolniak, 2017) can serve as a good guide for simply directing the pilot process. Suffice it to say again that these constitute general recommendations; that is, they are part of the methodology's philosophy, whose level of specificity must still be specified in light of the particular contexts in which it will be implemented.

These five phases, which are reflected in the general iDEM strategy through the DoA specifications, are also reproduced tactically, in the design of the use cases. To put it in other words: together with the large 36-month User-Centered Design plan for the development of the final iDEM tools and services, three small UCD plans will be developed within the framework of

T4.5 in Madrid, Bologna, and Barcelona. This document is useful when making a series of general recommendations that can be transferred to the specific characteristics of each of them.

The first phase consists of analyzing, that is, understanding the beliefs and practices of users in their respective contexts. This involves investigating iDEM final users in depth so that the basis of any iDEM development decision is only the theoretical or empirical conclusions about its potential users. Regarding this phase, the DoA establishes that it will be carried out in the first months through a literature review, interviews with experts, and focus groups. These tasks are developed, fundamentally, in WP1 and their results are accessible in the previous Deliverables (D1.1, D1.2, and D1.3).

The second phase focuses on the definition of a potential solution, specifying the requirements that must be met to adapt to the previously identified needs. According to the DoA, this phase includes participatory workshops held in the WP4 (and, more specifically, within T4.3) between months 6 and 18 of the project (June 2024 and June 2025).

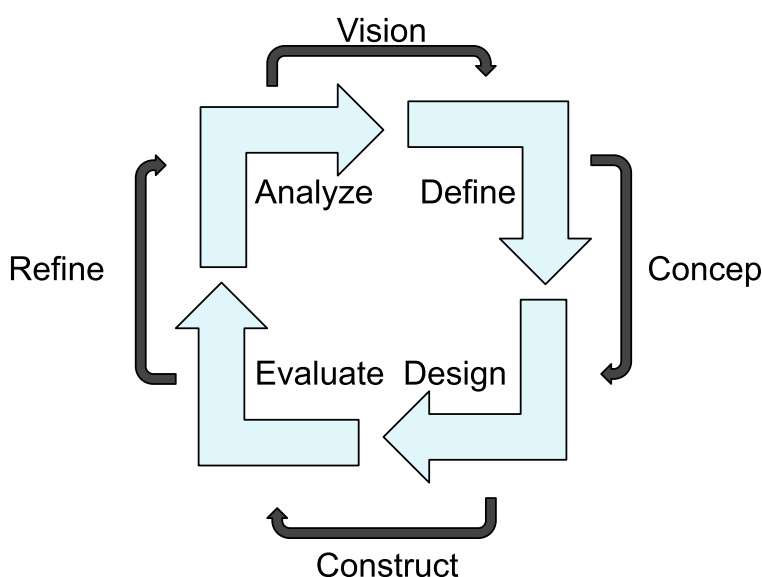


Image 1. Simplified flowchart of process phases. Own elaboration.

The third phase involves the design, integrating the previous phases' results. In this phase, the general requirements must be made specific and concrete, and actions taken to develop a pre-prototype, as discussed in D3.8. Once again, the DoA includes explicit references to this phase in the tasks registered in WP4 (specifically, T4.3 regarding the prototype design process and T4.2.2 about the three Use Cases, in Madrid, Bologna, and Barcelona) that will be carried out between the months 15 and 30 of the project. (April 2025 to April 2026) applying card sorting methods, journey maps, and, most importantly, prototyping workshops.

The next phase, the fourth, concerns the formative evaluation of the prototype with the users, in such a way that the information obtained is included to perfect the solution, creating a positive feedback loop. At this point in the process is when the distance between expectations and the reality of use becomes evident: the more significant the centrality of the end users in the design process, the shorter the distance that will have to be traveled to a satisfactory solution, and fewer feedback loops will be needed. The DoA, as a strategic document of iDEM, indicates that

this phase will be developed thanks to interviews with experts, observations, and online surveys from the sixth month of the project to its end (June 2024 to December 2026).

The last phase, which closes the cycle of innovative development based on the centrality of the user experience, shows the need, not only to repeat the positive feedback loop of phase four but, in addition to that, a new loop must be established to repeat the process and interconnect the different phases with each other, as a continuous improvement process until the information collected implies the validation of the developed solution. This last point leads us to the role of the external expert who, within the framework of T4.6, will monitor the development of iDEM.

As can be seen in the image, the phases complete a closed cycle that, schematically, includes four serial operations: vision, concept, construction, and refinement. In this way, a quality process is ensured with the ability to be informed and corrected in real time.

5. Pilot design

Until now, the nature of the UCD and its general connection with the iDEM project have been made explicit. In the following section, relevant issues related to the general design required by the use cases will be discussed in broad terms.

5.1. Prototype usability testing

Considering what has been said so far, it is essential to highlight that pilots are understood as studies, observations, or usability tests of prototypes (Levy, 2021). These denominations denote the production of qualitative information regarding the interaction of a product (an iDEM prototype) with its audience (in this case, three carefully selected groups of people and the roles they play) in particular contexts (which includes aspects related to the place, the language used, the type of process, among other factors). The aim of the piloting design is, therefore, multiple: it seeks to provide recommendations for refinement of iDEM services and tools based on validation from users' experience and collect valuable insight regarding the citizens' intention to continue using the provided solution in everyday life.

In this context, "usability" is defined as the extent to which a product can be used by specified users to achieve specific goals with effectiveness, efficiency, and satisfaction in a specified context of use. Consequently, "usability testing" is defined as a UX Research methodology in which users are observed while using a prototype to perform given tasks or achieve a set of defined goals. While usability testing can vary in its approaches and shapes, it shares a series of characteristics in every case:

- a) The primary goal is to improve the usability of a product.
- b) There are specific goals for each test.
- c) The participants do real tasks.
- d) Researchers observe and record what participants do and say.
- e) Data is analyzed, problems are diagnosed, and propositions to fix them are given.

The studies, observations, and usability tests, such as those that will be carried out in T5.1 refer to the process of producing interpretations of the results coming from the interaction between the proposed prototype and a representative sample of possible end users, in an environment previously designed and controlled, in this case, to simulate different types of participatory and deliberative democratic processes. During these studies, research teams will collect, through observation, qualitatively valuable information about the user experience: from well-being during deliberation, to the general usability of the tool. This method is very effective during users' first contact with the developed innovative solution, typically in phases four and five of the cycle.

In these scenarios, users interact with the prototyped product or service, carrying out tasks while they are observed, and their behaviors are recorded. In this way, it is easier to identify issues related to usability that would not be accessible by other means. Once the sessions are completed, the transcripts are shared with developers to implement the collected information to improve product quality. Only through this type of qualitative information can developers take charge of the real and unforeseen problems and challenges their users face. Although there is no universal guide with requirements that must be met in all cases, some important aspects should be paid attention to.

5.2. General Recommendations

To begin this type of study, it is essential to design a plan that includes the objectives to be pursued and the means that will be provided to achieve them (Unger & Chandler, 2023). The general objectives must be connected with other specifics, which contribute to defining tasks and levels of achievement that allow us to become aware of the user experience in a way as broad, deep, and diverse as possible. Given that the research will have an essentially qualitative orientation, it is necessary to determine a series of areas that help specify the extent to which users have a satisfactory experience. One way to achieve good objectives is to hold a kick-off meeting with the consortium partners involved to agree on realistic objectives about the purpose of each pilot.

Another key factor to consider in the pilot design is the representativeness of the people who participate in it. Three factors determine representativeness: the sample design, size, and the selection method (Omair, 2014). Regarding the sample design, it is evident that, along with general population studies, pilots very often require members drawn from social groups more or less determined by identifiable traits whose distribution is not homogeneous throughout the population. This could be simple from a naive socio-demographic approach, but this is not the case with iDEM. The reflection on intersectionality carried out in D1.3 requires a much more thorough sampling design, taking into account how different social considerations intersect and how the same person can belong to several vulnerable social groups simultaneously. The specific way this knowledge is transferred to the design of the pilots is essential and still being debated. Thus, the design will be more or less representative of the desired characteristic as it reflects its actual distribution. Therefore, the following factors must be taken into account.

Regarding the sample size (Singh & Masuku, 2014), it must not be too small to prevent sufficient variability within the study group to allow its significant variations to be directly studied (including not only typical cases but also borderline cases and unexpected cases); nor is it too large in such a way that it could distort the planned activities or that the collection and analysis

of qualitative information is hindered or prevented by excess epistemological noise or by the shielding effect of what is qualitatively significant.

Concerning the selection method, there are very varied techniques, from purposive sampling, random sampling, simple random sampling, stratified random sampling, cluster sampling, and systematic random sampling, among others. Whatever the method chosen, which will depend in any case on the achievement of the objectives, that is, on its effectiveness, efficiency, opportunity, or necessity, it must be taken into account that the ideal representativeness and the technically possible might not coincide. Decisions on design, size, and selection method determine, in any case, the technically achievable quality.

All successful products or services are successful because they provide solutions for all possible people and circumstances. However, achieving this goal is the end of a path, not the beginning. Therefore, regarding the sample's representativeness, it is advisable to start with people who are easy to access and who provide a large amount of information. Only then should they continue with profiles that can provide a large amount of quality information but which are more difficult to access. Finally, once these two steps have been completed with the appropriate profiles in the recruitment phase, they can be completed with explorations of people who are more difficult to contact and who can provide equally difficult access information.

Amount and quality of information expected to be extracted from this group	A lot	Meanwhile, plan these (2).	START HERE (1)
	A little	Include these, from easier to harder to get to, once the others are covered (3).	
		Harder to get to	Easier to get to
		Ease of access	

Table 1. Grid of priority in targeting. Own elaboration

It is advisable to focus on the behaviors, practices, and capabilities of the people who will be part of the pilot, and not so much on their demographic extraction. There are many reasons for this, as deduced from the intersectional approach developed in D1.3: a person's performance in analogous situations in the past is more predictive than their socio-demographic background. Thus, when testing a digital tool, it will be essential to know people's digital literacy level, ensuring varied profiles. On the other hand, it would also be essential to know the performance in other deliberative processes or the prior knowledge of the topics that will be discussed. For each case, how these considerations are validated (for example: high and low) must be sufficiently defined to allow recruitment.

It is worth noting that there are reasons to intentionally avoid statistical representative samples. The first is that many participants are necessary, perhaps too many considering the methodological limitations of the UCD. The second reason is that, both by number and selection method, it would take a long time. The third reason is that large random samples can hinder innovation by neglecting atypical users who would otherwise only be represented in very large groups. The defense, in short, of smaller groups selected strategically is the iterative design, which is enhanced by the sequential scheduling of the three iDEM pilots. Mechanisms to eliminate potential candidates may also be included: no candidates who could ruin the pilot will

participate. It is even more important that the ideal candidates attend. Be that as it may, it is highly recommended to have a recruitment brief prepared to have all these contingencies under control.

It is not advised to rely on social media for selection: the right people will not come spontaneously. Although social networks can be complementary forms of recruitment, it is strongly recommended to avoid these procedures, since the commitment obtained through these means is usually shallow, creating false expectations regarding the number and quality of commitment required to successfully achieve the pilot's objectives. It is better to assume some recruited people will not come, so it is prudent to consistently recruit extra people and be sure of proper incentives to encourage them to show up. The longer the testing takes, the stronger the incentives may be.

As a consequence of the above, alliances with representative entities of the people who are expected to be part of the pilot must be strengthened: it is necessary to go where the users we want to select are. This form of contact implies getting bonds with institutions or organizations (private, public, or third sector). Furthermore, a good practice is to carry out the pilots in the places where these organizations operate regularly, avoiding new locations that involve cumbersome trips to distant and/or unknown places, at least at the very beginning. However, adequate testing of the developed solutions may require testing them in contexts as varied and representative of real situations as possible, which may contradict the prerequisite. The solution to this dichotomy must be considered in the pilots' strategy to optimize the results of these drawbacks.

It is also necessary to ensure that a contact agenda is established, so that the participants can be contacted by the organizers from the previous phases, including possible awareness or training sessions. These agendas must include various means of communication, adapted to the needs and preferences of the participants.

Although ethical issues are discussed later (5.3. Ethical and legal issues), the order of the presentation invites us to also include here the fact of obtaining informed consent from the participants, so that they understand the reasons for their participation and the institutions, procedures, and people that protect their rights during the process. All these documents must meet the most demanding standards of cognitive accessibility, legal rigor, and ethical attention to obtain the highest quality consent and guarantee the traceability of these procedures.

Before the pilot is carried out, it is important to design an onboarding process, in which users receive the most vital information to start using the tool provided to them. This first contact process should also serve to familiarize the participants with the setting up of each use case: reduce the feeling of artificiality and purpose of the trip, of the place of deliberation, of all the people gathered there, and everything that has been designed for the pilot execution.

It is also recommended that there be a procedure to collect direct feedback from users. In this regard, it is important to take into account the principle of minimization, according to which the production and processing of data will be limited, without exceeding, the nature and volume required to reach the objectives of the research. No matter if the data is collected by completing paper forms, taking notes by observers, recording (audio or video), or any other analog or digital means (as well as the techniques for processing), must be explicitly consented to by the participants.

It is very important to correctly design the tasks that the participants will perform. These may be even more important than the representativeness of the sample since finding the problems sought with this type of research directly depends on it. The tasks must be concrete, realistic, and attractive so that the participants can and want to carry them out. Broadly, there are six types of tasks (Travis & Hodgson, 2023), as follows:

- Direct tasks: they are a good way to know if participants can use the product or service developed to fulfill a task that, ideally, has a single solution. Therefore, whoever develops this task must think about it with that solution in mind and check if the participants can reach that result.
- Indirect tasks: in these tasks, the ideal response is shown to the participants and they are asked to obtain it using the product or service that is the object of the pilot.
- Self-generated tasks: both direct and indirect tasks work well when it is known what people expect to get from the product or service being tested. Autogenerated tasks work well when this is not clear. In this case, participants are asked what they expect to obtain, before knowing the product or service in detail, and then these expectations are tested. In this case, the observers' job is to refine or orient these expectations to possible tasks.
- Partially self-generated tasks: These tasks are useful when you have a sufficient idea about what participants can expect from the product, such that a general objective is defined and participants are asked to complete, concretize, and finally perform it.
- Error testing: An alternative possibility is to place participants before a situation that leads to a foreseeable failure of the system to record which are the most logical solution paths for them and implement them in the redesign.
- "Skin in the game" tasks: this task aims to maximize the principle that participants must test the use of the product or service in the most realistic way possible. With the right incentives, you can ensure that considering the consequences of the participant's actions, they take the game as seriously as possible.

Anticipating qualitative information collection systems offers benefits that are difficult to exaggerate. Preparing a variety of recording and analysis methods in advance is a guarantee of success. Among the examples that can be listed are having prepared a battery of specific but sufficiently open questions that help identify areas of improvement through detailed opinions and assessments, and direct observation of pilot groups whose non-intervened dynamics reveal problems that had not been mentioned. Previously or explicitly the technical means for collecting and analyzing information needs to be prepared with the highest quality and with the least possible delay.

The scheduling of the process contributes to the order of the tasks, making it easier for all the people involved to understand what their role is at all times. During the process, it is advisable to establish some milestones that allow the process to be reviewed and adapted to the partial results that are obtained. Thus, along with planning recommendations, it is necessary to take into account demands for constant adaptation. Related to this, attention should be paid to the technical and human support mechanisms that ensure that they always meet the needs of the participants.

Before starting it is necessary to have prepared the actual piloting details. Materials and every kind of communication with the users need to be simple and clear, meaningful, encouraging them to do what is supposed to be done without overwhelming or slowing them down. This also includes visual materials supplementing the words. Special attention should be paid to physical objects (laptop, tablet, mobile phone, etc) with which users are interacting and also with the physical space (its structure, density, atmosphere, etc) where the pilot is taking place because they determine the quality of the interaction. As it is foreseen that the iDEM pilots are being made in a Lab-based utility, it is noticeable that, beyond its obvious advantages, also offers some counterpoints, like being an unnatural environment to demonstrate typical and real behaviors. Also, a concern is the amount of time and the ways it is expected for the user to interact with the prototype. Last, but not least, users' behavior should be included in the equation. While the other factors are vital in their own right, this one sheds light on a deeper aspect of the human realm that is expected to be lighted with the User-Centered Design methodology.

But above all, it is important to ensure an atmosphere that allows the unexpected to emerge. A safe environment of honest and direct omnidirectional communication, in which participants feel free and comfortable to provide meaningful and critical comments, is the necessary condition on which qualitative analysis rests. If participants fear genuine participation, user experience analysis will be trivial. Therefore, it may be advisable to establish anonymous information channels to obtain information that would be difficult to obtain otherwise. However, this two-channel strategy can have paradoxical effects that must be carefully assessed.

5.3. Bad practices to learn from

Once the use case has been initiated, moderators face situations in which bad practice can compromise the quality of the information obtained (Travis & Hodgson, 2023). Mistakes can be made when setting expectations about the purpose of the Use Case over describing the role of moderators, forgetting to check that participants understand what they are doing, or asking biased questions. However, we can summarize some of the most important ones as follows: the less intervention, the better.

When moderating, excessive talking should be avoided. There are two times when this can happen: at the beginning of the process or during it. However, it is indeed necessary to introduce the sessions and briefly remember the results expected from them. However, this cannot overshadow the purpose of observing what participants do. Silence, if it occurs, is also valuable information whose emergence should not be hindered. Of course, participants are expected to participate, think out loud, and speak, but if this does not happen, and it is strictly necessary to intervene, it is advisable to do so calmly and in the least disruptive way.

Another problem arises from incidentally explaining the pilot design to some or all participants. This prevents us from observing the interaction that would have occurred naturally since these people will have information that other users (in short, the end users) will not have. Moreover, very often, participants will not only hear an explanation of the design or what will be tested, but a defense of it, which restricts our ability as neutral observers and nullifies the perception of neutrality that the participants would have from the moderators. The most special case is observing a participant interacting with the product in the "wrong" way and having to correct them to do it in the "correct" way. The test risks becoming a training session or, in the worst case, an argument. If it is strictly necessary to intervene, it is advisable to ask what that person is doing at that moment (and nothing else).

There is a more subtle version but with the same impact. A participant simply asks a question. This is great because it indicates the participant may spot a problem and want to let us know. You should not answer the questions, but rather record them and observe how the participants react to them and how they solve their problems. Trying to learn through the words of the participants is like digging in a delicate archaeological site: the truth is hidden beneath, but it risks being destroyed if overly invasive tools are used. An ethical and empathetic way to deal with this situation is to warn it from the beginning: it is expected that there will be questions and they are all welcome, but they will not be answered because the interaction is intended to be realistic as it would be without the presence of the observers. Another way is to respond with another question that redirects the first one to the participant's mental processes and practices without adding more information. Observers cannot be credulous with the answers and must record both types of practices: what is expressed verbally and what is done physically. If words and actions were coherent, if the reasons for their beliefs and actions were transparent to people, research would be redundant.

Related to the above, one way the purpose of a pilot can be misguided is by falling halfway between what it was initially intended to be and an interview. This can happen by trying to extract as much information as possible from the participants. To prevent a particularly committed participant from prioritizing pleasing the observers over interacting with the solution being tested, the observers must follow their role strictly, placing themselves discreetly (or hidden from the view of the participants) and with proper body language (taking notes and avoiding eye contact). It can also be communicated at the beginning of the sessions that, after the testing, there will be spaces for closer interaction between all those present.

The best way to avoid these common mistakes during a pilot test is to continuously become aware of them. After each session, it is a good idea to go back to the recordings and revise what each has done, making it part of their personal development, and identifying what could have been done better.

5.4. Ethical and Legal Issues

From the beginning of the iDEM project, interviews and focus groups have been carried out following the recommendations and agreements from WP6¹² and its Ethics Committee to ensure compliance with these issues. Nevertheless, due to its importance, here is a reminder of the basic principles. Informed consent is the process of helping participants make an informed decision about whether they want to participate. In addition to an ethical requirement, there are also legal obligations, including GDPR, regarding specific requirements around personal data.

Although there are various legal ways to grant consent, not all of them meet the same ethical standards. In other words: there are more and less ethical and valid ways of doing it. Once we have a quality information sheet that explains why the participant's presence in the process is required and a parallel consent sheet is established, there should be a breakdown of each of the circumstances for which consent is requested, clearly and expressly. In this way, quality consent is encouraged.

On the other hand, it is advisable to adequately separate the issue of the participation incentive,

¹² Ethical Principles and Procedures. It includes D6.1 'Ethical Protocols', D6.3 'Ethic training and support materials' and D6.6 'Data management plan'.

which will be delivered to attendees as soon as its nature demands, although it generally coincides with the end of the process. As the iDEM services that will be a central part of the pilot contain elements of intellectual property that the members of the consortium want to protect, it is advisable to add a non-disclosure clause. This section must be perfectly separated from consent so as not to confuse one with the other and guarantee the autonomy of the participants.

It is important to remember that consent is not a protection for researchers, but rather a protection for participants. This is not about reducing consent to a legal transaction that protects researchers against any possible claims from participants. No matter how exhaustive the documents prepared are, unless they have been drafted or reviewed by lawyers who have advised on their content, how to complete them by the participants, and how to treat the forms before, such supposed protection may be illusory.

Taking into account, furthermore, that among the people who will be part of the pilots are elderly people, migrants, and people with cognitive and intellectual disabilities, the legal aspect of consent could be even more delicate. Therefore, in addition to paying due attention to legal issues, it is important, above all, to act in good faith and ensure by all means that the participants understand what they consent to. To do this, the first measure is to adapt the forms and, secondly, have printed copies of them at the pilot's place. If it is necessary to sign something there, it is essential to put in place all the necessary means for valid consent to be granted. General precautions include summarizing the fundamental points and asking the facilitators or participants' companions for help. In the worst case, verbal consent could be obtained, taking advantage of the presence of witnesses and the possibility of obtaining a recording of the process.

This initial and necessary process can be the beginning of mutual trust: it facilitates the organizers' empathy with the participants as well as their trust in the participants. It is not advisable to turn it into a legal formalism, nor to minimize its importance.

In addition to matters related to consent, although directly linked to it, there is the issue of the processing of personal data, which is valid from both an ethical and legal perspective. The mandate to minimize data implies that no more data is processed than is strictly necessary to fulfill the legitimate purpose intended. Although minimization protects the interests of the participants and simplifies the work of researchers, limiting them excessively can reduce the depth of the analysis: data that is not collected during the execution cannot be recovered at any later time and contextual observations that may seem trivial at first glance, can, repeated and structured under the appropriate perspective, illuminate aspects that would otherwise be lost.

Therefore, be as it may, a data plan must be established and transferred to the information and consent sheets, detailing the data collection techniques and contexts in which those will be applied, the methods of analysis, and the objectives sought. This involves deciding whether to take field notes and/or record audio or videos (each of them being more intrusive than the others, but offering more complete data from a qualitative point of view). For this reason, a general analog approach is recommended, with audio recordings in the main phases of the deliberative process and short video recordings at especially critical moments of the pilots. In this regard, participants must be informed of their rights, which they can exercise at any time, including rectification, cancellation, and revocation of consent.

RISK	Description	MITIGATION ACTION
Data Privacy Violation	Participants may feel their data (such as demographics, contact details, or survey responses) is not adequately protected, especially in cases of online data transmission.	Inform participants clearly on data handling procedures, retention policies, and their rights to access or delete their data in compliance with GDPR. Employ secure data encryption and anonymization.
Informed Consent Concerns	Participants may not fully understand what they are consenting to, particularly due to linguistic or cognitive barriers.	Provide easy-to-read consent forms and offer verbal explanations of key points. Allow participants to ask questions and obtain clarification before consent.
Risk of Accessibility Discrimination	Participants with disabilities may feel excluded if the platform or venue is not accessible.	Ensure both physical and digital spaces comply with accessibility standards.
Security risks with online participation	Online interaction could be susceptible to unauthorized access or cyberattacks, potentially exposing participants to privacy risks.	Use password-protected sessions and secure platforms. Inform participants about best practices for secure online participation, such as not sharing login credentials.
Vulnerability to Coercion or Manipulation	Participants, particularly those from vulnerable groups, may feel pressured to respond in certain ways, affecting their autonomy.	Emphasize voluntary participation and the option to withdraw at any time without consequence. Ensure facilitators are trained to respect participants' autonomy and to avoid leading questions.
Confidentiality Breaches in Public Deliberation	Participants may inadvertently disclose personal information during public discussions.	Set clear guidelines on sharing personal information in public debates establishing free spaces where sensitive issues can be discussed privately if necessary.
Unintended Data Disclosure During Analysis	Personal information could be revealed in reports or analyses if data is not carefully anonymized.	Ensure that all published results are fully anonymized, and conduct regular audits on data to ensure compliance with privacy standards.

Table 2. Participants legal and ethical risks and mitigation actions

6. Specific approach for iDEM pilots

So far, some of the standard guidelines for all possible piloting have been presented, based on the general literature on qualitative methodologies, as well as on knowledge and previous

experience in research practices of this type. However, the pilot design tasks have not yet begun, since T5.1 does not do so until January 2026. Therefore, this preliminary document has the difficult purpose of being general and specific simultaneously, which can only be done based on provisionality and continuous improvement. Acknowledging the significance of these characteristics is crucial for the upcoming analysis of the document. This analysis will include all available information on the three pilots, and it is important to note that no final decisions have been made yet. The final knowledge transfer from WP1 to WP4 and specifically to the design of the pilots probably requires specific sessions in which the consortium members involved meet.

In the current state of the pilots, two different objectives are being considered, which are not incompatible, each of which would be the occasion for more detailed recommendations. Firstly, the pilot design could maximize the sample's representativeness from recruitment to simulate a democratic space that is as heterogeneous as possible. This would more easily accommodate potential iDEM users at the extremes of their respective distributions, offering high-quality information and contributing to the further development of the iDEM tool for a broader audience. The second objective is maximizing the quality of deliberation from the design of the pilot that minimizes in advance the barriers that may hinder it. Although iDEM services may not influence some of these barriers during the deliberation process, special attention to them would illustrate the impact of a combined strategy. Finally, as pilots consist of observing the interaction between a prototype and a set of users, there will always be a third set of recommendations addressed to observers, aimed at making them focus their gaze and record the practices that make deliberation difficult. This can be done, in turn, from a double perspective, looking only at those elements in which iDEM can have an impact, or including others that, by design or lack thereof, prevent or limit a more productive deliberation.

The recommendations presented below extend, when possible, the indications of the specialized literature thanks to the theoretical and empirical data coming from WP1 (and especially D1.4, section 4). In other cases, these are prospective applications of general principles or adaptations of good practice examples to the design requirements specified in the DoA, updated by the meetings and joint work of the consortium members.

6.1. Recommendations to maximize representativeness

The methodological part was an opportunity to understand in greater depth the possibilities and mechanisms to make the representativeness of the sample effective. To this, we now have to add the conclusions on the barriers that limit or prevent participation, their typical contexts, and the most important actors and roles in them, as well as the need to include a transversal approach based on an intersectional analysis, some of the recommendations resulting from crossing both sources of information and extrapolating them to the pilots' repair design.

When recruiting, any inclusive measures will have a positive effect, especially those from organizations with previous experience with vulnerable people. Addressing institutional barriers requires that the recruitment organizations value and represent diversity, and use appropriate, respectful, and inclusive language. Being transparent and clear about all the measures taken, from the beginning to the end of the process, will have positive effects. It is recommended to adapt the recruitment means and materials to the different target groups.

The health barrier can significantly impact recruitment. To minimize this, it is recommended to provide support for medical and health needs at the pilot site, such as taking medications or

using health equipment privately and comfortably. Another possibility is offering remote or hybrid participation forms for people with more limiting health conditions. However, this barrier becomes more rigid with the severity of health problems.

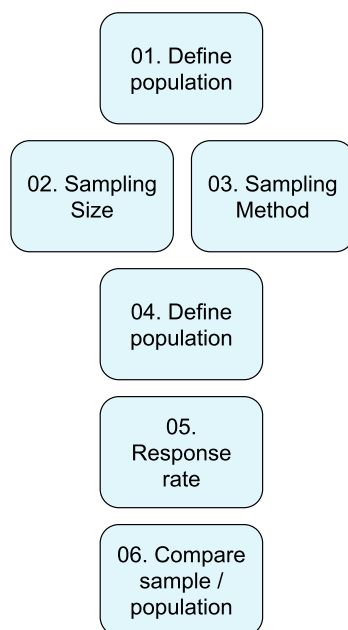


Image2. Criteria for sampling representativeness. Own elaboration

Also, there is a time availability barrier, as time is a very inflexible aspect. If it is not possible to offer flexible times and durations that adapt to the participants' routines, short sessions should be promoted that interfere as little as possible with crucial moments of the day (such as lunch). Another alternative is to ensure that the participants will have that time available, but this only confirms those selected, without allowing those with less time to be included in the process. Therefore, this measure must be complemented with others, such as the proximity of the place of care.

Additionally, possibilities could be explored that facilitate the conciliation and care of people or animals in charge. To minimize the impact of the literacy barrier, both analog and digital, it would be desirable to validate the recruitment process by people who have similar experiences to the potential participants, checking that the contact method, the language used and the materials offered are accessible and understandable. Additionally, the outcome of this process can be maximized with the help of community intermediaries who help disseminate the purpose and details of the pilots.

Tackling distrust from the beginning will imply, if possible, to carry out a prior awareness-raising stage, or include it in the recruitment process. Including testimonials or examples from people with similar experiences who have participated in other processes can promote trust. Also involving community leaders or trusted figures can reduce skepticism and create an environment of safety and openness. Clearing out all possible doubts about the guarantees of confidentiality and anonymity of the results can help overcome this obstacle, by being transparent about the process and future of the information collected from them.

Previous familiarization sessions can also be organized so that participants know the location,

format, and other details, reducing anxiety. Of course, the invitation of family members or trusted and supportive people should be promoted.

Transportation facilities can be offered and, if expenses cannot be compensated, central locations should be chosen, as much as possible, that is, close and accessible to participants, reducing the need for private or public transportation. If transfers between different means of transport are unavoidable, special assistance can be offered at the points where it is required by volunteer staff, if strictly necessary. In a complementary way, offer accessible and adapted public transport routes. In any case, start times must be planned that take into account travel needs, avoiding peak hours and allowing ample time. It is equally important to pay attention to the accessibility of the place where the pilot takes place: a minimum standard is needed to be sure that the place has eliminated architectural barriers and has ramps, wide doors, and adapted bathrooms. Finally, the route from the nearest transport stop should also be accessible.

6.2. Recommendations to maximize deliberation's quality

Regardless of the specific design decisions, it is necessary to remember some key points from (OCDE, 2022) regarding the objective and commitment of this kind of deliberative process that should be pursued and taken as specific objectives. Keeping these keys in mind indicates that involving vulnerable people and groups in participatory and deliberative processes requires explicit adaptations. Some of them will be partially or dissolved by iDEM, but others are a matter of the general strategy of the pilots and the specific design of each of them. However, there are two issues of particular interest: the clarity and impact of the purpose as well as engagement and accountability.

The objective for participants is to deliver on a public challenge, aiming for an outcome (e.g. consensus recommendations). About this, the choice of topics on which the deliberation revolves will have a great influence on the entire process, from recruitment to the end of the execution of the pilots. It has been agreed that current topics and controversies (such as euthanasia or animal abuse) have the advantage of not being issues especially linked to the social background of the participants and can be motivating, they also have the disadvantage of being too general and polarizers. Therefore, the consensus at this time is to guide the deliberation towards issues of daily life and local scope. Although these topics may not be the most appropriate from the point of view of the interest of the most active participants (who maybe prefer a broader scope and deliberate around global issues), they offer preferable advantages from the point of view of risk prevention for the process. An intermediate approach could include a general approach framing everyday issues, allowing participants to move between different scopes of the problems discussed, offering key points to debate, and preventing tacit consensus on the desirability of more and better public services in their respective areas and communities. So far, the consortium partners agree that some of the most interesting topics may be, among others, urban mobility and transportation or policies related to the environment and waste management.

Participants' commitment to the process should be increased by linking it with an imminent public decision, with ongoing information, consultation, or voting processes. If such a connection is possible, local issues are covered by the additional incentive offered by the probable effectiveness of the results of the deliberative process. This requires a differential approach depending on the type of process since it requires collaboration either with local governments and administrations or with social movements active in the area. In any case, if this option were

possible, and the results of the deliberation could be communicated to the political leaders of the area, the return of the results to the participants would also be maximized in addition to contributing to the public communication of iDEM.

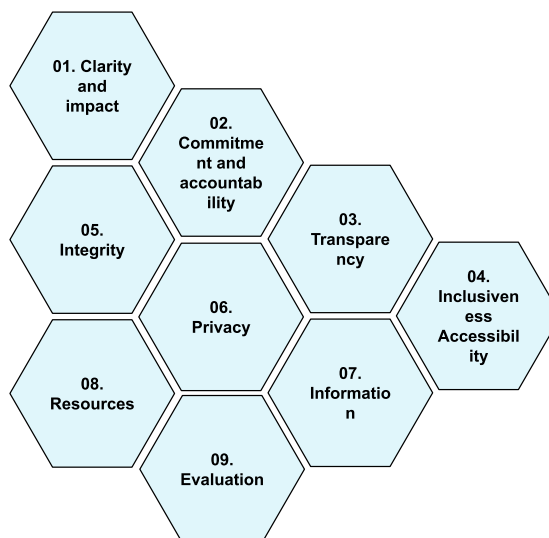


Image 3. Quality criteria for good participation. OCDE (2022). Own elaboration

With the relevance of these previous indications in mind, it is now necessary to extend the recommendations to the deliberation process itself. It would not be required to remember the importance and effect of first impressions and first moments in all kinds of processes, which is why special care must be devoted to the welcome protocols and, then, offering a respectful professional environment that ensures confidentiality and makes it easier to express it without fear of judgment.

To maximize the results of the deliberative process, it is recommended to simplify and adapt the information according to different analog and digital literacy profiles, as well as repeat and recapitulate key information through various channels. Facilitators also play a key role, especially if trained in literacy and inclusive communication. Additionally, implementing alternative participation tools such as voting with colored cards, or simple election systems, avoiding dependence on written language, facilitates the integration of people with low literacy levels into the process.

Other necessary measures include controlling the space and making sure it is accessible. Furniture should be adapted to the physical needs of the participants (ergonomic tables and chairs), and there should be enough space between them to facilitate movement. This also makes it easier to change the group structure if necessary. Avoiding unnecessary trips by compressing the number of sessions and changes in layout also facilitates better use of time and activities. Reducing noise, and having good acoustic and adequate sound facilities would also help. If this is not possible, in any case, promote an orderly environment and any technical means that facilitate the amplification or listening of messages. Additionally, define or remember a simple code (such as raising hands) so that the rest of the participants or moderators act accordingly if necessary.

Along with non-verbal codes, it is advisable to establish codes of respect and tolerance to reduce tensions toward adverse opinions, advocating active listening and dialogue. If sensitive topics or

potential tensions are raised, mediators must have and deploy the expert mediation mechanisms they deem appropriate for each case. Finally, it is advisable to design a flexible assistance system adapted to individual needs, which is adequate but not intrusive: there will always be additional assistance upon request. It is not about over-assisting, but about promoting autonomy.

It would also be desirable to plan additional times for each activity. This point is crucial since if urgency is added to the lack of time, the process's results can be seriously damaged. One way to reduce the time required for tasks is to offer reference materials in accessible formats in advance. Additionally, to avoid overload, it is advisable to divide the sessions with sufficient breaks. These will also help people attend to their medical needs.

If new information is divided into small learning units, presenting topics in short, easy-to-understand sections, moving forward step by step, it would be easier to understand. Facilitate multisensory learning methods and reinforcement of key points with frequent summaries and repetition, adjusted to the timing of the activities.

It is also recommended to have empathetic facilitators, who have training and experience in dealing with vulnerable people. Of course, limits and non-tolerance towards discriminatory attitudes or that devalue democratic principles must be established. Facilitators and mediators must be able to sensitively deal with issues related to mistrust and self-esteem of participants, detecting and managing situations in which mistrust may appear. Gratitude and validation of contributions are strategies that must be deepened. Frequent breaks allow participants to chat privately with their caregivers, allowing them to return to activities with greater knowledge and confidence. For people who lack this type of personal support, a support team could be offered by the organization to guide and assist participants at specific times.

Another good practice points to the need to have assistive technological devices such as screen readers, accessible keyboards, or audio amplifiers for participants who require them so that they can participate without having to purchase their own. It should be ensured that any digital platform going to be used has accessible and friendly interfaces, including color contrasts, subtitles, and other similar compatibilities. Non-digital but equally accessible alternatives, such as brochures or simple voting devices, can be implemented. The measures to increase the quality of on-site deliberation are aimed at programs and designing flexible activities and dynamics in which assistance is provided discreetly, punctually, and on-demand, always within the framework of personal autonomy.

6.3. Recommendations on detailed observations

Observation recommendations are significant since they result from all the previous designs. Therefore, the recommendations below are based on an informed interpretation of previous WP1 documents illuminated by available methodological advice (Travis & Hodgson, 2023; Marsh, 2015). However, the impact of iDEM's interaction with the pilot participants will be different for each of the identified barriers and also different depending on the intersectional factors present in each case.

Observing and recording the signs and practices related to the economic situation would make it possible to complete the relatively scarce information on said barrier collected so far. Some examples might be recording the degree of comfort when sharing experiences or opinions

related to financial stress: if they avoid the topic, show discomfort, minimize its impact, feel relief when being heard, or other similar situations. It is not only convenient to record oral or written manifestations, but also physical, emotional, and, in general, non-verbal manifestations: any sign or indication is valuable. Attendance and absenteeism patterns can be noted, or the status of their devices (if they have them) can be used as an indication of the persistence of this barrier. Of course, as iDEM has no direct impact on its reduction, the participants' appreciation of making information more accessible can be observed, which can indirectly reduce the costs that would otherwise be required to access it. This may appear in informal but not expressly planned comments, but it may be appropriate to expressly include it in some type of final general survey.

Some special circumstances to take into account in the observation include interaction levels and signs of social comfort or discomfort. The observation will focus on a specially designed social interaction, so social barriers, widely considered, are always important. Deliberation is a social process as well as interaction with technology and includes different social capacities that must be put into operation. It is advisable to identify the signs and behaviors that indicate greater social effectiveness, as well as the strategies of those with fewer skills in relatively more adverse social contexts (noise, underlying tensions, environment perceived as overprotective, adaptation to group dynamics, perceptions of equal contribution, etc.). It is expected that iDEM will have some impact in reducing this barrier since, by simplifying the language, it will facilitate social interaction, interpersonal communication, and feelings of trust. This impact must be looked at specifically.

Health is a very rigid impediment that iDEM can affect tangentially. The simplification of messages and the consequent reduction of cognitive barriers to information can improve the conditions of participation for people affected by related disabilities. Observing on this basis how people with different types and degrees of cognitive disability can interact with each other and with the rest of the participants is one of the keys to this project.

Analogously, time has persistently been identified as the most critical aspect of participation. Regardless of the design measures taken (if any) to minimize it, iDEM can have a valuable indirect effect and will have to do with its ability to be effective in adapting messages in real-time, so that participants can, to some extent, deliberate in a more synchronous way. The ability of iDEM to reduce the time expected by participants to complete tasks, or the aspects that make it marginally difficult or impeding, are notes of maximum interest.

Beyond the contextual observations on the success or possible design improvements in the physical accessibility of the participants (from transportation to the pilots' place and movements within the place: changes in the arrangement of the groups, breaks, etc.), iDEM will not impact this barrier, so there are no specific aspects to observe in this regard.

In contrast to the previous one, the need for technological assistance requires specific observations crucial for the subsequent development of iDEM. It is recommended to observe the performance with the use of the application by participants with different levels of digital skills, especially older people, and their need for additional assistance. Signs of unfamiliarity or frustration are crucial to designing a service accessible and attractive to future users, significantly reducing the need for further support, once a certain level of digital competence has been surpassed.

Similarly, it is foreseeable that a significant impact will be observed on the need for personal support or assistance, perhaps not in terms of mobility or health problems, but certainly in the

need for support to understand the information and have a role in the decision-making process. Although it is always interesting to record and analyze in more detail the need for personal support in general, the degree of independence achieved through iDEM in understanding the information and, especially, in the decision-making process will be especially interesting for the development of the project. decision-making: whether participants express or perceive that their autonomy has increased, how it has done so, or how it could do so even more. In this sense, the ability to communicate independently without assistance would be the ideal standard. Additional information can also be obtained on user accessibility recommendations for transportation, location, and iDEM services.

It is crucial to observe the extent to which the barrier related to literacy (analog and digital) is seen to dissolve. The impact of the pilot on it is another of the keys to the project. Linguistic simplification will help people with limited linguistic skills to express their ideas in syntactically and semantically complex environments such as spaces for democratic deliberation. Observing whether the iDEM services are effective, and to what extent in the readability and understandability of the messages, the need for successive explanations (whether by experts, moderators, facilitators, or anyone else) is of maximum interest. The time to complete the tasks, the expected times, and the participants' perception of effectiveness are the best indications. Of course, there is an additional dimension related to iDEM's navigability and usability, whose general functionality must also be tested.

Observing the impact of mobility and transportation can undoubtedly contribute to complementing the information available on how it affects the participation of vulnerable people and groups in democratic spaces. Still, it has difficulties in being observed, to the extent that it is recommended that the personnel necessary to drive the pilots do so with sufficient notice and also because it is an inflexible barrier to the services that iDEM provides.

Trust or distrust in the process is a critical factor for the quality of the deliberation and for incorporating improvements to the development of iDEM. It is, therefore, a contextual and diffuse barrier but no less important. You can begin by recommending observation of the role of prominent people expressly or tacitly assigned the role of increasing said trust. Also by evaluating how the welcome formalities and guarantees of confidentiality are communicated and received, since they can be perceived as mere impersonal bureaucracy or as a sign of concern for the rights of the participants. The emergence of controversial topics and testimonies can be a sign of trust. Still, the reception by the rest of the group and the actions of the facilitators and moderators in these cases must also be observed. Additionally, one cannot forget to record verbal and non-verbal cues about the effectiveness of the participant's contributions to the outcome of the deliberative process. It is also about analyzing whether iDEM contributes to that feeling of self-confidence.

Factors related to learning and its expectations are important in the process. iDEM can significantly facilitate the understanding of new concepts related to a field often as specialized and technical as politics. Observing how participants are less connected to the particularities of public discourse and, especially those with cognitive disabilities, learning new information is very important. Also, learning how to use iDEM's services is simple. Beyond that, looking at this aspect can give clues about the relationship of this barrier with others. For example, confidence in asking questions may relate to learning, communication, or trust. Be that as it may, all the quality information regarding the pilot as a learning situation contributes to deepening the theoretical and technical bases of iDEM.

As expected, iDEM will have a direct impact on reducing communication barriers. It is undoubtedly necessary to record, as far as possible, the effectiveness of the different formats in which the information is offered, the role of the communicators who assume that role in each case, and the general atmosphere in which the process is developed, both in its static and dynamic aspects, including non-verbal communications in the latter. But beyond these considerations, it is crucial to pay attention to the need for additional support due to the quality of iDEM's service, the quantity and quality of information it provides to the different profiles of participants, and its ability to address specific communication difficulties. It would be impossible to list in detail the different communicative aspects that would be of interest because, in addition, together with the observance of the rest of the aspects, they would make the observation too demanding. It will be the professional experience and the specific requirements of each pilot, along with the rest of the knowledge that comes from other work packages and that crystallizes in the version of iDEM that will be tested in each case that imposes additional considerations.

Given that language is a source of power, and that iDEM has the express goal of democratizing by reducing linguistic barriers, the impact of iDEM on power differentials can be very significant and contribute to shaping spaces for inclusive deliberation and more horizontally. In this sense, an additional recommendation aims to record the dynamics of listening, discussion, and, where appropriate, voting. Again, it is not only about recording and analyzing verbal practices but also how the accessibility of information and the facilitation of its communication can be realized in a more open deliberation and how this openness is perceived by its protagonists.

Finally, it may be valuable to gather feedback from organizers and external participants (especially experts and members of local administrations) regarding the possibilities of this tool.

6.4. Specifications for Uses Cases

As indicated, the provisional nature of the pilot design prevents making recommendations as strong and concrete as desired. For that reason, simplicity is the main advice: a detailed design is required to increase confidence in the process and extract as much quality information as possible in the narrow window of opportunity offered. To this end, preparatory sessions with iDEM are planned.

During the invitation and assistance phases, organizations representing the interests of underserved people play a crucial role in recruitment, facilitating participant involvement, and providing training, resources, and support. In that way, communication needs to be clear and inclusive, using simplified vocabulary and images. Sending printed, easy-to-read invitations and offering RSVP phone options would help people unfamiliar with digital communication. Physical accessibility barriers may be tackled, especially for senior adults, by ensuring transportation arrangements to the venue and appropriate accessibility. State clearly that participation is free, including assurances that data privacy will be respected to reduce institutional distrust. Information on the purpose of iDEM needs to be provided. It should also be verified that the iDEM prototype is compatible with older devices and has features for limited digital literacy skills like voice-to-text or simplified navigation. Subsequently, the information, deliberation, and evaluation phases will be developed.

After that, during the process, personal and technical support is needed. Family members or caregivers provide individualized support. Moderators must act on behalf of the participants,

preventing supporters from inadvertently taking over the conversations. Moderators play an essential role in the development of conversations. It has not yet been decided whether this important figure will come from the organizations involved in the pilots or whether it will be necessary to hire external professionals. In any case, it is required to ensure that they have experience moderating debates with the groups that are the object of study or provide them with the necessary training in the most convenient way. The latter may include centralized training in an external organization, in a consortium partner, or in a decentralized manner, by different external or consortium organizations linked to the local context of each pilot. For their part, special training is needed to prevent reinforcing some barriers in place. In the information phase, materials should be provided in accessible formats, such as short narrated videos and printed brochures with simple diagrams to suit different literacy levels. Key points and avoiding jargon should be helpful for those with difficulties. Maybe setting up pre-discussion sessions where participants can review materials with facilitators to ensure comprehension without pressure.

Similarly, integrating experts in the topics to be discussed is planned as a source of stimuli from which the participants deliberate. It would be necessary to specify the need for specific prior training to help them communicate in the context of the use cases. The possibility of using iDEM services for this purpose or producing audiovisual material that serves as parallel support is suggested. Other mixed strategies include expert oral presentations and human-supervised, easy-to-understand summaries.

In the discussion phase, setting up small and diverse discussion groups with a moderator is advisable, as they are more likely to overcome communication and discouragement barriers more effectively. Larger pilots may want larger groups, and less numerous pilots may need smaller ones; always aiming for a balanced representation of different social groups. There is still debate about how groups should be arranged and ways to minimize associated risks. There are at least two strategies for this. The first involves facilitators and moderators playing a pivotal role in the tasks to be carried out. The second is to group the participants into groups that they find reliable. They are not necessarily exclusive, although a more active role on the part of some actors may make it less necessary to rely additionally on others. It is also recommended to minimize environmental distractions in quiet rooms or, if using larger rooms is needed, consider place dividers to reduce sound overflow or more complex technological solutions to reduce or cancel it. Encouraging participation and validating participants' contributions should be done, but avoiding oversimplifications and infantilization.

On the other hand, there are still significant unknowns about the status of iDEM services for the start of the pilots, to the extent that it is recommended to use it as intensively as possible in all phases of the deliberative process. This implies the need to minimally train participants and other relevant people (facilitators, moderators, experts, etc.) on its use and capabilities, affecting the tasks' design. These tasks can combine face-to-face and online activities. Combining different strategies allows for maintaining commitment, giving extra time, diluting power dynamics, and ultimately, facilitating deliberation.

Finally, it is necessary to agree on the expected outcome of the deliberations, something on which there is also no unanimous consensus. An alternative is to emphasize the material results of the deliberations. In this case, they could be oriented toward developing a set of recommendations, even if it is at the cost of losing specificity in them. Another possibility would be to point to the formal virtues of the process, for example, through videos that show how

iDEM contributes to facilitating discussions. They are not contradictory approaches, so the requirements and precautions of each possibility must be examined in more detail.

6.4.1. Use Case 1. Madrid

Top-down processes are characterized by giving a greater role to the organizing institutions in the design of the deliberation conditions than to the participants. Processes of this style, despite having obvious difficulties, also have interesting elements to take advantage of. As these are initiatives organized from the centers of power, they may have more resources (financial, logistical, technical, and any other type) than other initiatives (particularly bottom-up and cross-cutting). One of the most essential resources, that deserves its attention, is the information available to participants, who can count on data of higher quality than that obtained by other means. Additionally, they enjoy a perhaps even more intangible resource: the public visibility provided by the protection of highly structured organizations, which can encourage alliances with other interested groups or institutions. Therefore, its capacity to strengthen institutional capacities is greater compared to other alternatives. They are also typically faster processes both in their design and execution, which can be beneficial in specific contexts in which a more immediate decision is required. Its ability to influence public policies more directly can maximize the results of these processes and strengthen trust between the organizing institutions and the groups they host.

These types of processes have more difficulties adapting to their participants' context, reality, and specific needs, which can affect their effective participation. It may be that barriers that make real participation difficult or seriously impede are not addressed in advance. The power differential and mutual distrust between institutions and groups and people can discourage participation from the beginning. Along with this, barriers related to communication can lead to participation that is more symbolic than real, and key decisions are distorted concerning an ideal deliberative process. If these types of processes are not carefully designed, they can reinforce existing inequalities and even aggravate the situation of vulnerability and marginalization of those whom they are intended to empower. The frustration of participants in processes of this style can reduce their interest and institutional confidence for other future occasions. A particularly worrying case in this sense would be one in which, in a more or less intended way, these processes can be used to legitimize (falsely) decisions already taken in advance by the authorities, instrumentalizing the vulnerability aggravated by the type of design of these processes.

Considering the above, recommendations include certain design decisions and key actors in the process. Firstly, about the issues to be discussed in the deliberation, it seems advisable to reach an agreement with the Las Rozas city council on a matter of local importance that has been decided recently or, better yet, whenever possible, a topic on which a decision will be made soon. This not only insists on the ability of hierarchically superior actors to influence the process, but should increase concreteness, proximity, and commitment among the participants. Special care must be taken that the top-down approach to the process is flexible enough so that the deliberation is real and that none of the key and hierarchically superior actors have a decisive influence on the process. The city council, the recruiting organization, the partners involved, the invited experts, the facilitators, moderators, and assistants must strictly comply with the role they will be assigned and be especially vigilant not to determine in advance the outcome of the process. Avoiding these risks must include, at least, a clear attribution of functions and permanent control of power over power so that any deviation from what is planned is noticed

and corrected on-site in the most effective way possible. Bureaucracy must be taken as an ally to guarantee, as much as possible, the quality of the process.

The recruitment phase is vital since it requires a larger number of people than in other pilots. The entity in charge of the process will require quality profiles that may make it challenging to find the necessary number of participants. The incentive can contribute to solving this problem, which can be further minimized by using the notion of intersectionality as a key to relief. On the other hand, discussion group design is incredibly complex, since it includes an enormous number of possibilities. For the moment, the recommendations are aimed at organizing groups starting with a few members and progressively increasing their size while diversifying their composition. The design of the tasks can also be facilitated by the type of process, being able to assign different roles and dynamics from above. On the other hand, given that the number of groups to be observed will grow, it is necessary to anticipate additional needs for observation or recording personnel. Finally, given that the use of iDEM as a web platform is planned, it is essential, together with the design of the tasks, to establish indicators that allow problems to be solved to be recorded.

6.4.2 Use Case 2. Bologna

Bottom-up processes, for their part, are associated with more positive connotations regarding their possible productivity in terms of quality deliberation. However, they are not without problems and their inherent, often unnoticed, risks must be considered.

These types of processes usually have fewer resources, which can limit their scope and effectiveness. By relying on their strengths, vulnerable or marginalized people may find themselves excluded by not having the capacity to access said democratic spaces. Capillarity is not guaranteed: the lack of organization or leadership, and the bases' inability to structure its operations to their objectives, can negatively affect decision-making. By developing in parallel with institutional actions, their impact may be limited: only on some occasions, in which these processes reach a critical mass and sufficient duration, can they garner the media and/or political attention necessary to effectively convey their recommendations to the institutional public decision-makers. However, the above shows the difficulties of these processes to scale: although they can often have local influence, they can rarely grow.

If these processes grow, they face several existential challenges. The first and most frequent is continuity in the medium and long term, due to the costs of participation compared to its benefits. Time runs against processes that depend solely on the will or energy of vulnerable people. The second risk has to do with fragmentation since, as it gains scale, the lack of leadership, structure, or agenda can lead to both contradictory objectives and duplication of tasks. The third risk is that, once these important obstacles have been overcome, the process is co-opted and instrumentalized by outside interests, acting as a justifier for others' decisions.

Taking this into account, bottom-up processes have good ingredients to adapt in advance to the needs of their members, since the actors and processes are closely linked to their respective contexts. In addition, they generate a great sense of belonging and capacity, since their members feel part of the processes and their results. Thus, they can create new social networks, ties of community cooperation, and new leadership that increase the general social capital of vulnerable and marginalized groups. These capacities, located in their respective local contexts, directly affect people. It is not trivial to insist on their flexibility and capacity for innovation since they can better adapt creatively to unforeseen situations.

All these reasons point to a more significant role for the participants in the design of the process, which can mean additional time. An example of this is the specific choice of the topic to be discussed, within the field of climate change. Recruitment must be done with special care since reducing the number of participants reduces the probability of encountering difficulties that may affect marginally small percentages of the population. Participants from the ANFASS network can be carefully selected, and special attention must be paid to external participants, since they will guarantee representativeness and control, establishing the ideal mechanisms to find the desired profiles. On this occasion, trust and mistrust between groups may be greater than in other cases, since there is a clear division between insiders and outsiders, which also corresponds to a logic of majorities and minorities that must be specifically addressed. The incentive could be designed to try to alleviate this potential initial tension: since it will not be financial, it could serve as a bonding element or occasion for bonding. Finally, accessibility and productive interaction must be guaranteed in both the in-person and digital phases, establishing moderation rules in the latter case and ensuring the continuity of the formats. It is also important to consider the opportunity for the deliberation to be transferred to the competent authorities, something that can also contribute to having a common objective and making the process as real as possible.

6.4.3. Use Case 3. Barcelona

Cross-cutting processes integrate various actors, levels, and social sectors in participatory and deliberative decision-making. Their complexity, combining elements from top-down and bottom-up processes, allows them to address complex problems from multiple perspectives. However, these processes do not guarantee that there are no issues.

One of the main problems of this type of process includes the complexity of coordinating diverse actors from different levels. Convergence between the interests of individuals, civil society organizations, and political institutions is possible, but it is not automatic. This circumstance can lead to slowdowns in decision-making or implementation. The need to focus on the effectiveness of internal processes (that is, formal bureaucratic requirements that throttle the purposes for which they were designed) can dilute the impact of the decisions made. When these can be especially conditioned by the most organized and powerful actors, the process can be biased to the detriment of the interests of vulnerable and marginalized people and groups. This particular circumstance is more likely when the members of these processes do not have previous experiences that enable them to interact constructively with other actors of a different nature. Thus, it may happen that a macro agenda does not leave room for specific problems, or that the conflicting interests between different participants eclipse the purpose that brought them together. Centrifugal forces among constituents can inadvertently exclude vulnerable people unless specific measures are taken to ensure their effective participation.

However, such transversal processes have advantages by providing a holistic vision based on different perspectives from different angles. Each actor's resources, knowledge, and capabilities can be complementary to each other, so their effect can be multiplied. The representative, legitimizing, and innovative quality of this type of consultation process, which involves a wide range of actors with interests in the matter at hand, is obvious. Finally, it allows us to forge strategic alliances and extend their impacts simultaneously to different levels.

7. Final considerations

Before concluding, it could be helpful to remember several factors behind the success of this kind of research process (Soegaard, 2020). The first is that the tool that has been tested is perceived as beneficial. The utility is found in designers' eyes or minds and users' beliefs, attitudes, and practices. If what is the object of testing is not received as a solution to a problem, it can't be exploitable. The second factor is its usability. If users can achieve their goal with the means they have available. Although a solution may be successful without meeting this requirement, it is much less likely if it is not. The third factor is credibility. Today's users do not give second chances when they perceive critical failures or if, for any reason, they perceive that the product is unreliable. Another way of saying it is that to continue using the service that has been tested, they need to trust that it provides the answers they need and that it will continue to be able to do so in the future. In this sense, the feeling of professional quality is crucial throughout the process. The fourth factor is that it is desirable. These are achieved through image identity, aesthetics, and emotional design strategies, putting users at the center. The fifth factor, key for us, is accessibility. It is necessary to keep in mind that more accessible solutions are not only more helpful, reliable, and desirable for people with disabilities, or for people with some contextual linguistic difficulty, but for the general public. The sixth and last factor is the result of all of them together. The product must generate an overall valuable experience, in this case, not only reducing or eliminating language barriers but effectively allowing deliberation in democratic spaces.

8. Conclusions

This document serves as a bridgehead between the characteristic research of the first phases of the iDEM project and the realization of the Use Cases. To do this, it has been explained what User-Centered Design and User Experience are as qualitative research methodologies, their definitions, principles, and primary phases. Then, the focus is moved to pilot design as a core phase in which prototypes are tested, as they will be in iDEM's three Use Cases. Some general recommendations were made to prepare and conduct the research. From the plan and objectives, the sample size and selection criteria to recruit, alliances with local organizations, location decisions, and diversity of participants' backgrounds and practices. Special attention has been put on task design and factors influencing performance. A Good practice framework has been added to move forward with ethical and legal recommendations, including consent and a risk assessment table.

The literature and previous conclusions from WP1 inform use cases in particular. As important decisions need to be made soon, the recommendations need to be read as general and provisional. Three different recommendations have been settled: for maximizing representativeness, maximizing the epistemic quality of deliberation, and, finally, recommendations to better observe qualitative issues during the pilots. Some final considerations have been added about the nature of each pilot and successful insights that need to be considered.

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