Final qualification of COLAE user centric innovation model & recommendations and best practices for effective commercialisation of OLAE

D5.4.2
WP5

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Content

1- INTRODUCTION

The ultimate objective of the *user-centric COLAE innovation model* is to deliver an alternative to conventional approaches based on passive studies and events towards the development of a pro-active open innovation environment which will deliver integrated solutions in terms of commercialization readiness assessment, adaptable open innovation methodology, a portfolio of practical implementation measures and training and dissemination activities in support of acceleration of value creation through OLAE manufacturing.

Following D 5.4.1 as well as the previous deliverables, we were able to establish what we consider to be the best practices for a fast commercialization of OLAE.

Based on the previous experience of the workshops, as well as the collaboration with the different work packages and the post-workshop interviews of the end-users, 5 points were identified as relevant and important for an effective commercialization of OLAE: the market segment, an understanding of the needs, awareness of the technology, an easily accessible process, and finally, creating an urge.

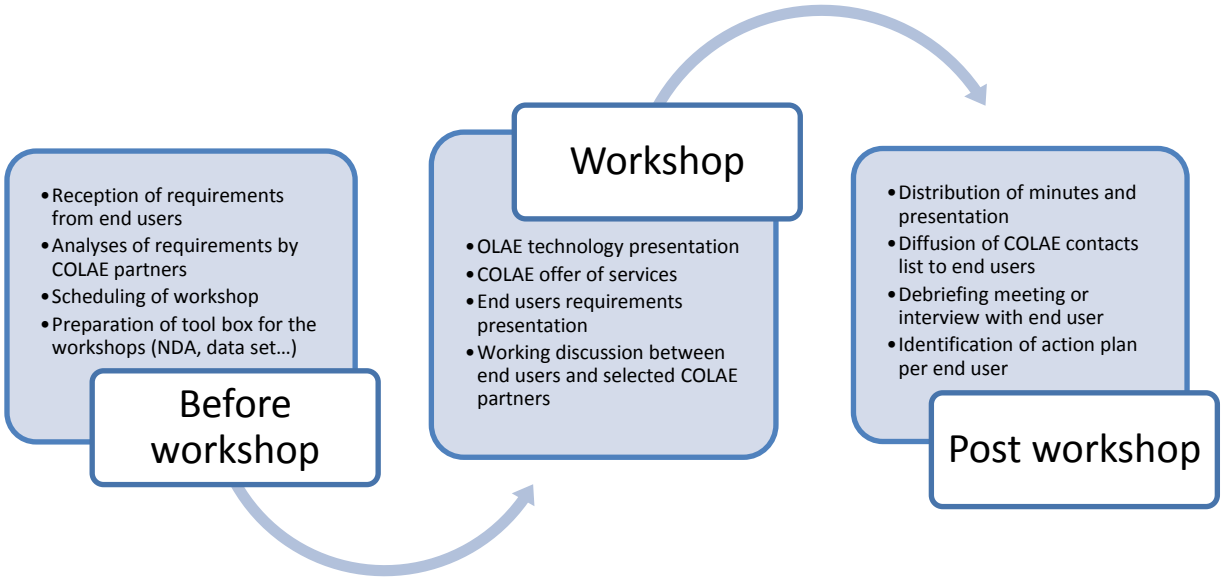

Figure 1: Main steps of the workshop process involving end users

2- RECOMMENDATIONS AND BEST PRACTICES FOR EFFECTIVE COMMERCIALISATION OF OLAE

Aiming to identify the 5 major points that lead to an efficient commercialization of OLAE, we have looked exclusively from the end-users' point of view. This approach focuses on how to help the end-user make profit out of OLAE.

2-1. The market segment

The market segment is a tricky matter. One may think that every market is a potential end-user of OLAE.

However, OLAE technologies have properties that are not compatible with all the market activities. As the final workshop in Porto showed us, construction for instance is not an easily accessible market for OLAE, because of the long lifetime of buildings, and the limited lifetime of OLAE products. With the same reasoning, we could see that aerospace is not a valid market segment either, because it is very expensive to repair a satellite every 2 years for example. At this stage, a hybrid approach may be seen as a valid approach since it allows taking advantage of the main strengths of OLAE and combine them with the maturity of other technologies. This way of working also has the advantage of slowly introducing in the market OLAE based products, allowing the analysis of these products in the market from the technical and financial points of view.

Another property that may limit the accessible markets for OLAE is the cost. As we could see in the Lyon workshop, packaging is an accessible market, with many companies showing interest in developing solutions for package monitoring (pH, temperature, acceleration…) However, if we are to include OLAE in the packaging of food, this may considerably increase the price of a bottle of milk.

So the question that may be asked is which markets are real potential end-users?

According to our analysis the markets that have the best chance of consuming OLAE are the ones that make **medium or high priced products**, with a rather **short lifecycle**, and **not submitted to rough environments** (sweat, heat/ice cycles…). Of course, the other markets are not to be completely neglected, especially when OLAE technology meets a new progress.

2-2. Understanding the needs

OLAE is a technology that allows us to combine mechanical properties with electronics. It opens a whole new panel of applications but also competes with more traditional and established technologies. However, to commercialize it, the technology providers must understand the needs of the targeted market segments, how it can increase the added value of a product and compete with other technologies.
An end-user has to find a difference between OLAE and standard technologies, but also has to need this difference in order to use OLAE. **Some of the needs are not explicit or not discovered yet.**
As the number of applications of OLAE is very large, one has to narrow down this number according to the expectations of the end-user and target the applications directly on the implicit needs of the end-users.

Seeking those needs is not easy if the technology provider is not in the core of the business of his client. However, what could be done is to **guide the end-users** through an interview, a workshop, or even more efficient, a demonstrators exhibit, targeting the activity of the end-user. This kind of event may **help the needs and new ideas to emerge** and become clear to the technology provider, as well as to the end-user.

2-3. Awareness on OLAE

Our experience in WP5 has showed that many of the participants in the workshops came in order to discover this technology. Some of them had some notions about OLAE but did not expected to be as advanced. Some thought it was not a reliable technology and others thought it was very expensive.

It is clear that some marketing on the technology needs to be done to change these judgments. End users need to **see demonstrators, exhibits, videos, and have an idea of the price and the size of electronic components in order to overcome their fears**.

The almost inexistence of OLAE based products in the market can also be seen as a limitation for the adoption by the companies, since it reinforces some of the negative views of the technology (reliability, price, limitations in large scale production…). Since adopting the technology can be seen as a risk by the companies, SME's will be more renitent to follow this path while larger companies with more resources to invest in new areas and with the need to be innovative and create disruptive products may be more willing to adopt new technologies/products.

2-4. Technology appropriation

OLAE is a brand new technology that requires a certain level of mastery of competencies. As it may use different production processes, it comes to the end-user as a complex niche product that requires a large initial investment both in equipment and human resources.
In order to commercialize OLAE more efficiently, we need to **facilitate the integration in the production process**, for the end-users to accept it.
Also, as the end-users are developing with this technology a new product and process, they need to know where they can make the R&D and where they can find production lines with the appropriate experts. The time to market and the cost, as well as a market study, are relevant questions from the end-users' point of view.
However, if the OLAE production process is integrated in the general process of the product, the other matters become ordinary routine questions. So what needs to be done to facilitate the appropriation of the technology by the end-users, is to **link them** not only **with the R&D centers**, but also **with some large industrial producers** to complete the value chain.

2-5. Making the product a priority

Having crossed the 4 previous steps, an important one remains: the urge. Indeed, if working with a new technology is not a priority, why would an SME for example invest time, money and energy on this development. This urge, this necessity to make OLAE a priority, could come from 3 sources:

- Important return on investment: it could come from the final consumer's demand (market pull) that is looking for something new and willing to pay the price for that. Or it could also come from the low price of OLAE when produced in large quantities (technology push). In both cases **some progress needs to be done**, whether it's in a **market study or in the cost reduction and increase of performance of OLAE.**

- Competitiveness: No company wants to be left on the margin, and if some companies started to use OLAE, other companies of the same field will have an urge to integrate this technology in their products as well. This was easily noticeable in the Lyon workshop where 2 packaging companies had similar ideas. One ended up not giving anymore news to the consortium, and

the other started a feasibility study. **A recommendation is then to invite companies of the same domain to participate in a workshop on OLAE**, which might create the urge we're seeking and accelerate the commercialization.

- Facilitate the creation of clusters that complete the value chain (materials, equipment, technology providers and end-users that are somehow related). An example is what happened in the workshop about construction where the companies, that have different areas of activities, engaged in parallel discussions on how they could work together using OLAE technologies integrating their products and expertise. This relates to the need of support that the companies require starting a new line of business, with some warranties that they will have suppliers of materials, equipment and technologies, with whom they can share some of the risk, available to get the product to the market.

3- CONCLUSION

In conclusion, from the whole WP5 experience, we could give the 5 points as important recommendations for an effective commercialization of OLAE:

- **The market segment**
- **An understanding of the needs**
- **Awareness of the technology**
- **An easily accessible process**
- **Creating an urge**

As explained, these points come from an end-user approach. As for a future consortium on OLAE, we could give the following **key recommendations**:

- The industrials need an industrial quantity production of OLAE. Some **pilot lines** accessible to all industries and that could permit an **industrial quantity production** of OLAE are to be spread across Europe. Indeed, these pilot factories will reassure the companies that the R&D they make on OLAE has a future and could give good return on investment.

- As the integration of OLAE implicates a great change in the production process of traditional products, we need to facilitate this integration. Therefore, the pilot lines would have to **target only one specific market segment each** but would have to be **adaptable to different production processes**.

- It is sad to say, but nowadays OLAE is still a niche technology, not very well known and accepted. This is why we strongly recommend that the consortium works on the **dissemination on OLAE**.

- Last but not least, the technology needs to be improved to increase user acceptance, and reliability. Some research needs to be done especially to increase the **lifetime** and improve the **integration in hybrid systems** of OLAE technology.