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**SILMO NEXT**

**EXPERT COMMITTEE**

*COMITÉ DES EXPERTS*

SILMO **NEXT**

# EXPERT COMMITTEE

COMITÉ DES EXPERTS

NOVEMBER 27, 2024

• **THEME:**

**Social and environmental impact, ethical questions**

How to build a techno-responsible era with smart glasses?

## EXPERTS

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# SESSION.02

November 27, 2024

## SESSION #02

### SOCIAL & ENVIRONMENTAL IMPACT, ETHICAL QUESTIONS

How to build a techno-responsible era with smart glasses?

## SILMO FUTUROLOGY REPORT

BY THE SILMO NEXT EXPERT COMMITTEE

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The smart glasses market is experiencing rapid growth, raising questions about their environmental, social, and ethical impact. A recent meeting of the expert committee brought together professionals from various fields to discuss the challenges and opportunities offered by this technology.

#### 1. Environmental challenges and eco-responsible design

Smart glasses present complex challenges in their design:

- **Lifecycle management:** Frames, electronic components, and lenses follow different lifecycles, complicating repairability and waste management.
- **Battery issues:** Regulations preventing the resale of used batteries, even if they appear new, result in significant waste.
- **Modular solutions:** Modular component design, while promising, is still limited by costs and technical constraints.
- **Carbon footprint:** Manufacturing smart glasses has a significant environmental impact, generating up to nine times more CO2 than traditional glasses.\*

It is crucial to integrate recyclable materials and sustainable solutions from the design phase, even though these approaches face economic and regulatory constraints.

#### 2. Social impact and human relationships

Smart glasses could redefine social interactions and raise concerns:

- **Limited accessibility:** The high production costs could restrict adoption to an elite, exacerbating social inequalities.
- **Effects on human relationships:** By filtering reality, these devices could alter how individuals interact and perceive their environment.
- **Mental and visual health:** The potential effects of smart glasses on health require in-depth clinical studies to assess the risks.

These reflections aim to shed light on the implications for the optical industry and consumers, within a framework of eco-responsible and ethical approaches

#### 3. Role of Artificial Intelligence and privacy

The integration of AI into smart glasses offers opportunities while presenting challenges:

- **Functional benefits:** AI enables innovative applications, such as assisting visually impaired individuals.
- **Energy consumption:** Increased use of AI could worsen the energy footprint, especially if these devices become ubiquitous.
- **Privacy concerns:** The glasses' ability to discreetly capture information raises privacy concerns, particularly in professional and public environments.

Adapted regulatory frameworks are essential to balance innovation with respect for users' rights.

#### 4. Transformations in the optical sector

The entry of major tech companies into the smart glasses domain could transform the role of optical professionals:

- **Evolution of opticians' role:** Traditional distribution channels could be bypassed, requiring opticians to adapt their skills and business models.
- **Reduction in traditional glasses market:** If smart glasses partially replace smartphones, this could lead to a decline in demand for traditional optical products.

#### 5. Ethical and regulatory issues

Participants emphasized the need for a strong ethical and regulatory framework:

- **Utility assessment:** The usefulness of smart glasses must be evaluated on a case-by-case basis, prioritizing high-value applications such as medical aids.
- **Data management:** Greater transparency regarding the use of collected data is essential to prevent misuse.



#### ACTIONS AND PERSPECTIVES

Several priority actions have been identified to support this technological transformation:

1. Conduct studies on the carbon footprint and reparability of smart glasses.
2. Raise awareness among optical professionals about these innovations and their implications.
3. Promote regulatory frameworks that balance accessibility, innovation, and ethics.
4. Develop modular solutions to extend product lifespans.

These collective reflections mark a key step in guiding the evolution of the sector while ensuring a balance between technological progress, environmental impact, and respect for human values.

(\*) It is important to note that the carbon footprint depends on numerous factors, including materials, manufacturing processes, supply chain, and company practices. Therefore, specific and detailed analyses are essential to obtain accurate estimates.

# SESSION #02

## Synthetic analysis of key points and strategic perspectives

### A forward-looking vision for smart glasses

Discussions within the expert committee highlight the multiple challenges associated with the development of smart glasses. While these devices represent a major technological advance, they also emerge in a landscape marked by complex issues.

#### 1. An innovation driving societal transformations

##### **Smart glasses are not merely technological tools:**

They symbolize a transition to a new way of interacting with information and the surrounding world. Promising applications in health (assistance for the visually impaired, medical diagnosis) and productivity (augmented reality, embedded AI) justify their development but raise fundamental questions about their utility for the general public.

##### **Strategic perspective:**

Encourage targeted adoption, particularly in sectors with significant social impact (health, education, accessibility), to maximize benefits while minimizing negative impacts.

#### 2. An Undeniable environmental responsibility

A comparison of the carbon footprint between traditional and smart glasses underscores the need to rethink design and production. Modularity and the use of recyclable materials are essential levers to reduce environmental impact.

##### **Strategic perspective:**

Promote eco-responsible design from the development phase by adopting circular production practices and collaborating with actors specializing in the recycling of electronic components.

#### 3. Balancing technological progress and privacy

The integration of artificial intelligence and sensors presents critical challenges regarding privacy and data control. Risks of misuse (surveillance, increased dependence on technology) require robust safeguards, particularly in a rapidly evolving regulatory context.

##### **Strategic perspective:**

Develop an international regulatory framework aligned with best practices to ensure personal data protection and usage transparency.

### 4. A changing optical sector

The entry of tech giants into the industry disrupts the traditional role of opticians, necessitating swift adaptation. These professionals must address the challenges posed by smart glasses to remain key players in this transition.

##### **Strategic perspective:**

Train opticians in new technologies and strengthen their role as trusted intermediaries to guide consumers in their technological choices.



### FORWARD-LOOKING CONCLUSION

Smart glasses sit at the crossroads of multiple issues: innovation, sustainability, ethics, and social transformation. While the prospects are promising, their widespread adoption must be approached cautiously.

It is essential to ensure that their development is based on principles of sustainability and equity, while meeting the expectations of both consumers and professionals.

The optical industry faces a unique opportunity: to actively engage in this technological revolution, ensuring that these innovations contribute to collective and responsible progress. The role of traditional actors, combined with an innovative vision, will be crucial in shaping a harmonious future for smart glasses.