6TH SPX INTERNATIONAL COLLOQUIUM

6__8 OCT LUXEMBOURG

PATIENT EXPERIENCE AT THE HEART OF ALL CARE

A shared challenge across all models of support

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HWL HEALTHCARE WEEK LUXEMBOURG

AI and Collective Intelligence:

Incorporating Patient and Healthcare Professional Experience into Health Technology Implementation

S X P INTERNATIONAL COLLOQUIUM

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The Living Lab Approach (CIUS & Le Quatre Vingt)

SHARED PATIENT EXPERIENCE

CIUS
CENTRE D'INNOVATION ET D'USAGES EN SANTÉ

QUATRE VINGT
PROPULSER LA SANTÉ DE DEMAIN

Background and Context

At CIUS, we coordinate a living lab "*Le Quatre Vingt*" which gathers **132 regional actors**:

- healthcare institutions,
- patient associations,
- research laboratories,
- startups,
- and innovation support agencies.

Our mission is to **experiment with tomorrow's healthcare**, under real-world conditions, by connecting technology providers with users both patients and healthcare professionals.

We operate within the framework of the **"5P Medicine"**: *Personalized, Preventive, Predictive, Participatory, and Proven.*

Beyond Expertise: From Observation to Empathy

Designers and sociologists, with their specific perspectives and methods, act as **translators** in complex user ecosystems to make the points of view of the different actors intelligible.

The combination of *external perspective* (design, sociology) and *internal knowledge* (health professionals) creates a productive tension a driver of collective intelligence.

- Immersion : switching between the patient's and the radiologist's perspectives.
- Patients as *experts of their own experience* : equally valued alongside clinical expertise.

Methodological Framework: Design + Sociology

Methods from Social Sciences :

Field immersion requires rigor and creativity. When direct observation is impossible, **cultural probes** and **observation grids** bridge the gap.

> These tools, borrowed from social sciences, help collect authentic user feedback under realistic conditions, while reducing cognitive effort and social bias.

Examples:

- *Cultural probes* used to gather lived experiences remotely (e.g., “letters of breakup” with the workspace to express hidden frustrations).
- *Observation grids* ensure consistency and rigor during limited field immersions.

Relevance to AI projects:

Such tools enabled the CIUS to understand how clinicians interact with AI decision support or ultrasound probes, even in constrained environments.

Immersion EchoIA

CHU [redacted]

Grille d'observation

Environnement de travail	
Emplacement de la machine dans la pièce	
Configuration du mobilier (ergonomie, déplacement autour du patient)	
Accessibilité des boutons/interfaces sur l'échographe	
Portabilité de la machine (dans cabinet ou hôpital)	
Interactions humaines	
Patient ↔ Médecin : explications, réactions, participation Collégialité dans le diagnostic (surtout à l'hôpital)	
Médecin ↔ Assistant·e / interne / IDE	
Collégialité dans le diagnostic (surtout à l'hôpital)	
Collaboration et transmission des résultats	

Conceptual Framework

Our approach is grounded in **collective intelligence**.

We consider that integrating AI into healthcare is not only a technical process but a **social and cognitive one**.

Three principles guide our work:

1. **AI is not meant to replace chaos with optimization** : It must engage with existing social dynamics of care.

2. **Social acceptability is not just about performance** : It's about shared understanding and trust.

3. **AI does not solve usability by magic** : It must be embodied in interfaces, workflows, and professional routines.

Hence, we work at the intersection of **design** and **sociology** to capture the lived experience of care and co-construct innovation pathways with users.

Prototyping as a Research Process

A prototype is not a final product but a *hypothesis-testing device.*

> *"Rather than testing a full idea, it is more effective to focus on one or two key user questions. If a test fails, it reveals major risks early, saving time and resources."*

Iterative prototyping = *exploratory research*

- **Early** prototypes test **desirability** (fake interfaces, visual stimuli).
- **Later** prototypes test **usability and ergonomics under stress** (e.g., SAMU simulations).
- When **in-situ testing is impossible, simulate environments to maintain ecosystemic validity**.

Case 1: EchoIA – Democratizing Ultrasound

Project 1 – EchoIA: Democratizing Ultrasound through

Context

Ultrasound is a key diagnostic tool non-invasive, mobile, but often inaccessible outside radiology departments.

Thousands of patients could benefit from faster, more accessible diagnostics, especially in **remote territories** or **emergency contexts**.

The EchoIA project explores how AI can assist non-experts — general practitioners, nurses, or astronauts — in performing reliable ultrasound scans.

Our method

We conducted **field observations and ergonomic analyses**:

- Studying practitioners' gestures, discourse, and environmental constraints.
- Identifying usability issues, such as reversed probe orientation or ambiguous feedback for beginners.

We also analyzed **patient perceptions**, often marked by skepticism toward AI or the use of ultrasound by non-radiologists.

Project 1 – EcholA: Democratizing Ultrasound through

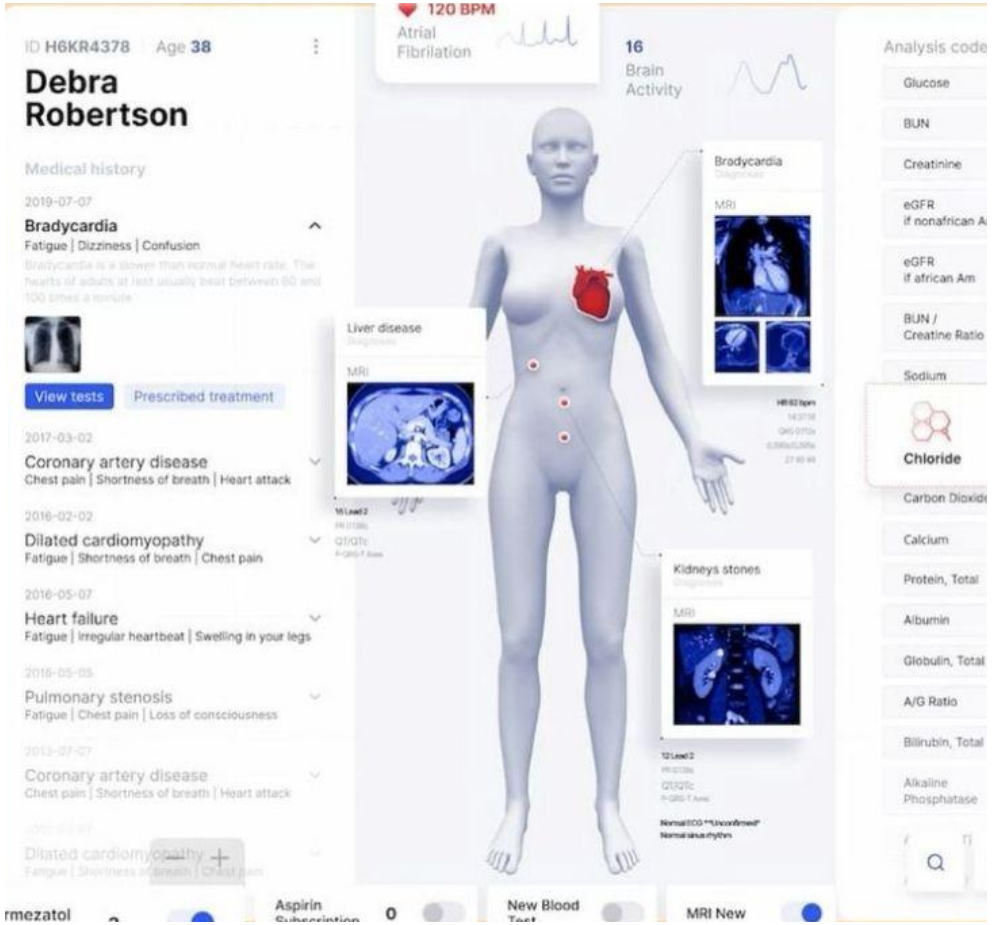
Design and Sociological Contributions

We proposed two key design interventions:

1. **The "completeness gauge"** a visual indicator helping practitioners know if they've sufficiently scanned the target area.

2. **The "mediator discourse"** pedagogical messages embedded in the interface to clarify the supportive, not substitutive, role of AI.

As we often say: *"The design-sociology tandem prevents building a brilliant but usable AI."*

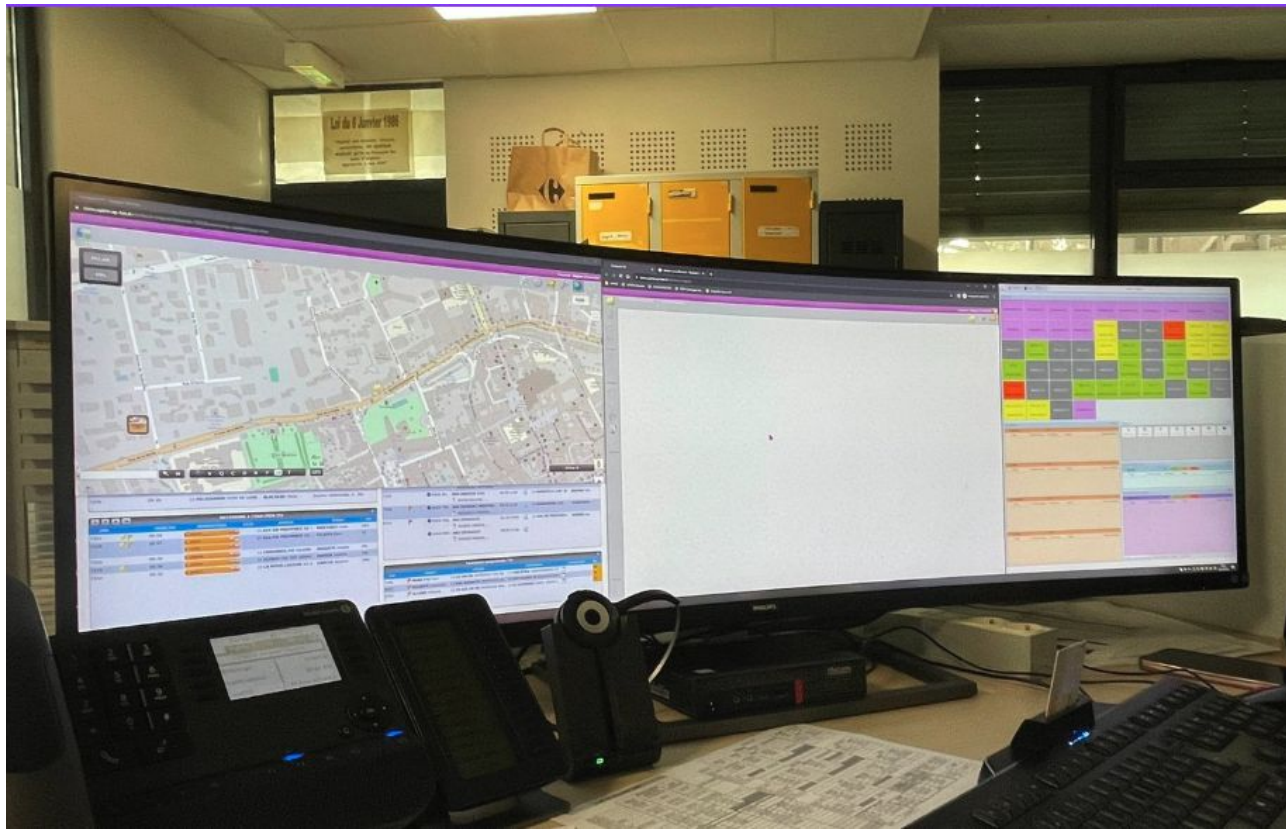


Case 2: AI-Augmented Emergency Calls

Project 2 - Enhanced Emergency Calls: Supporting SAMU13

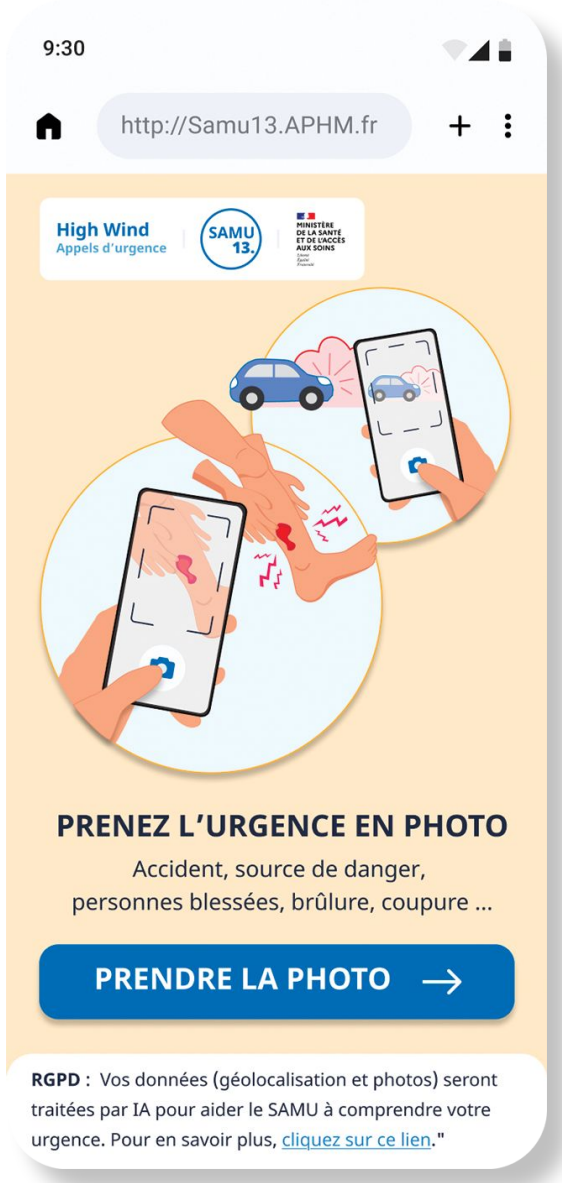
Context

- SAMU 13, the emergency medical dispatch service in Marseille, handles around **2,360 calls per day** with **30 agents**, a workload that has doubled in 30 years.
- AI tools were introduced to assist in **triaging and prioritizing** life-threatening emergencies.

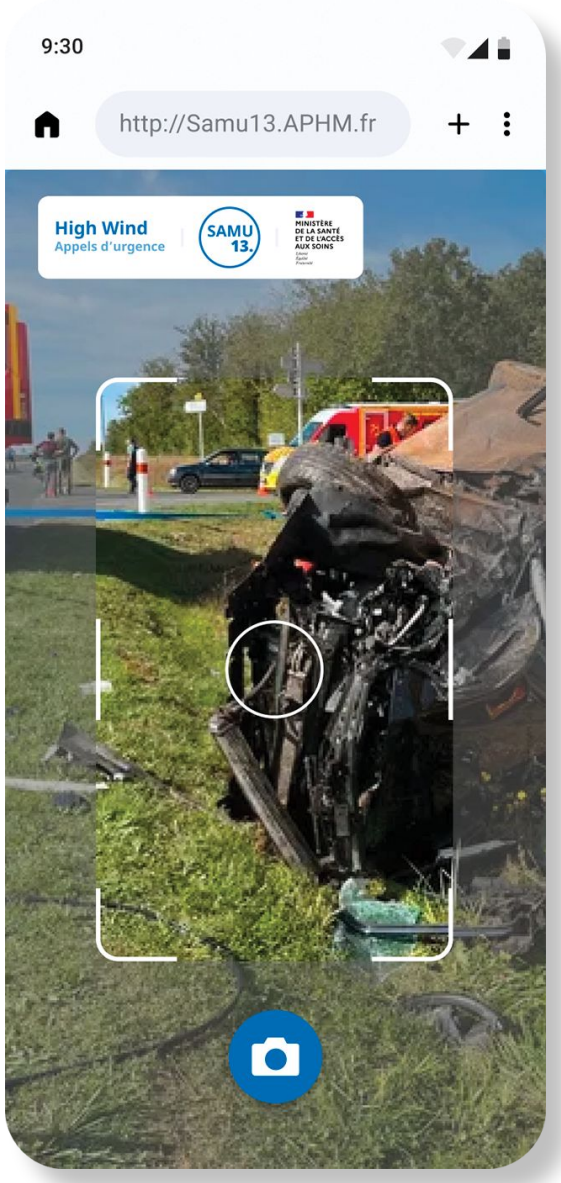


Our Observation from Fieldwork

- Maintaining human decision-making under **high cognitive and emotional load**.
- Ensuring that AI **supports** operators rather than replacing them.
- Preserving confidence and accountability within the medical team.


9:30
http://Samu13.APHM.fr
High Wind
Appels d'urgence
SAMU 13.
MINISTÈRE DE LA SANTÉ ET DE L'ACCÈS AUX SOINS
PRENEZ L'URGENCE EN PHOTO
Accident, source de danger,
personnes blessées, brûlure, coupure ...
PRENDRE LA PHOTO
RGPD : Vos données (géolocalisation et photos) seront traitées par IA pour aider le SAMU à comprendre votre urgence. Pour en savoir plus, cliquez sur ce lien."


9:30
http://Samu13.APHM.fr
High Wind
Appels d'urgence
SAMU 13.
MINISTÈRE DE LA SANTÉ ET DE L'ACCÈS AUX SOINS
Ne raccrochez pas, un agent du SAMU va vous répondre.
REPRENDRE
ENVOYER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Project 2 - Enhanced Emergency Calls: Supporting SAMU13

Our Approach

We immersed ourselves in the regulation center to observe workflow and constraints.

Then, we developed **low-cost simulation tools** to test:

- User journey comprehension,
- Experience under various stress levels,
- and the acceptability of AI-based decision support.
- AI tools were introduced to assist in **triaging and prioritizing** life-threatening emergencies.

Findings

The integration of AI raised essential organizational questions:

- How does the team collectively interpret algorithmic suggestions?
- How does technology redistribute responsibility?
- Here again, our mixed methodology helped design *AI-assisted* workflows that strengthen, not weaken, collective intelligence.
- “With design + sociology, we don’t impose a solution we build a journey, we test it, and above all, we clarify the decision.”

Lessons Learned

Crossed Perspectives – What AI in Healthcare Requires

From these two case studies, we can extract broader insights about the relationship between AI and collective intelligence:

Prevailing Assumption

- AI replaces human decision–making
- Acceptance depends on technical performance
- Technology solves problems of use

Our Observation from Fieldwork

- In practice, it reconfigures collaborative reasoning
- It depends on trust, understanding, and context
- It creates new ones, requiring continuous adaptation

Thus, implementing AI in healthcare means nurturing a **collective learning process**, not simply deploying a tool.

Navigating Uncertainty: Collective Learning Loops

Innovation in healthcare is a process of **collective learning through iteration**.

Progress is made as much by **renouncing** ideas as by validating them.

> *“Moving forward sometimes means knowing when to let go.*

Applied to AI:

Failures in early AI-human interface prototypes revealed invisible barriers — such as trust issues or role ambiguities — allowing the team to redesign both the tool and its organizational context.

Academic framing:

This aligns with *design anthropology* and *reflexive innovation* approaches, where learning emerges from the confrontation between technical possibility and lived experience.

Toward an Ethics of Co-Design in AI Implementation

Incorporating patient and professional experience is not only methodological, it is ethical and political.

Collective intelligence arises from:

- Shared authorship between developers, clinicians, and patients.
- Reflexive design practices that make implicit values explicit.
- Attention to power dynamics in human & AI collaboration.

The *Design to Care* framework transforms AI deployment from a technological project into a **social negotiation**, where each iteration strengthens trust, usability, and legitimacy.

Conclusion: From Field Insights to Implementation

Conclusion

Incorporating patient and professional experience into AI design strengthens both **technological relevance** and **organizational resilience**.

Our work demonstrates that:

- Field experimentation is essential for contextual adaptation.
- Cross-disciplinary collaboration — design + sociology — enhances usability and acceptability.
- Ultimately, *collective intelligence* is the real enabler of AI in healthcare.

We aim to translate these insights into **operational roadmaps** — helping developers and healthcare institutions move forward *carefully*, toward the most useful and socially acceptable innovations.

We would like to thank all partners of the CIUS, SAMU 13, and the EchoIA consortium for their collaboration.

Thank you for your attention - I'll be happy to take your questions.

Questions & Answers

SHARED
PATIENT EXPERIENCE