Smart Qabin – Royal Ahrend

Created by: Team 5 (Aiman , Mahta , Mohamed)
Created on: April 2, 2026 10:22 AM
Changed on: April 2, 2026 11:56 AM

Technology Impact Cycle Tool

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Impact on society

What impact is expected from your technology?

What is exactly the problem? Is it really a problem? Are you sure?

The current Qabin provides a static environment that does not adapt to user needs, usage context, or long-term well-being.
This can lead to discomfort, fatigue, poor posture, and lack of safety awareness.

Are you sure that this technology is solving the RIGHT problem?

Modern work involves long sitting periods and dynamic usage scenarios, which require more adaptive and supportive environments.

How is this technology going to solve the problem?

The focus is on improving user well-being, comfort, and safety, not just adding technology.
The system addresses real user needs such as posture, fatigue, and environmental comfort.

What negative effects do you expect from this technology?

Possible negative effects include:

-Users feeling monitored due to sensing
-Over-reliance on automation
-Incorrect system decisions (e.g., wrong detection)
-Reduced sense of control if automation is too strong

In what way is this technology contributing to a world you want to live in?

The technology promotes healthier and more sustainable work environments by:

-Supporting user well-being and safety
-Encouraging healthier work behavior
-Improving comfort and productivity
It contributes to a shift toward human-centered intelligent workplaces.

Now that you have thought hard about the impact of this technology on society (by filling out the questions above), what improvements would you like to make to the technology? List them below.

Key improvements include the following:

-Ensure user control over system behavior
-Maintain privacy through local processing
-Improve accuracy of detection
-Keep system behavior transparent and predictable

Hateful and criminal actors

What can bad actors do with your technology?

This category has not been filled yet.

Privacy

Are you considering the privacy & personal data of the users of your technology?

Does the technology register personal data? If yes, what personal data?

The system does not store personal data, but it processes user-related information in real-time.
Computer vision is used to detect occupancy, posture, and activity, which can still be considered sensitive, even if no identity is captured.

Do you think the technology invades the privacy of the stakeholders? If yes, in what way?

The system has a low level of privacy invasion by design, since no data is stored and processing is local.
However, the presence of continuous sensing (especially camera-based) may still create a perception of being monitored.

Is the technology is compliant with prevailing privacy and data protection law? Can you indicate why?

The system is likely compliant with GDPR principles, as it follows data minimization and avoids storing personal data.
Local processing and the absence of identifiable data significantly reduce privacy risks.
However, compliance also depends on user awareness and informed consent.

Does the technology mitigate privacy and data protection risks/ concerns (privacy by design)? Please indicate how.

Privacy is strongly supported by design in this system.

Implemented principles include:
-No data storage
-Local (edge) processing
-No identity recognition
-Real-time processing only

This reduces the risk of misuse and aligns with the principle of data minimization.

In which way can you imagine a future impact of the collection of personal data?

The long-term impact is limited due to the absence of data storage. However, if future versions introduce data logging or cloud integration, privacy risks may increase significantly.

Now that you have thought hard about privacy and data protection, what improvements would you like to make? List them below.

Despite strong privacy design, several improvements can strengthen user trust:

-Clearly communicate what the system detects (via UI)
-Provide an option to disable sensing features
-Use visible indicators when sensing is active
-Ensure transparency about system behavior
-Maintain strict no storage policy in future iterations

Human values

How does the technology affect your human values?

How is the identity of the (intended) users affected by the technology?

The system supports users by improving comfort and well-being through posture monitoring, break recommendations, and environmental adaptation.
However, sensing technologies may make users feel slightly monitored if not clearly communicated.

How does the technology influence the users' autonomy?

The system supports users by guiding behavior (such as , posture correction and break recommendations) and optimizing the environment.
However, too much automation may reduce user control, so manual override is essential.

What is the effect of the technology on the health and/or well-being of users?

The system improves well-being and safety by:

-Encouraging better posture
-Recommending breaks to reduce fatigue
-Detecting sudden falls and triggering alerts
-Maintaining comfort through predictive ventilation

This enhances comfort, safety, and productivity.

Now that you have thought hard about the impact of your technology on human values, what improvements would you like to make to the technology? List them below.

-Allow users to enable/disable health-related features
-Keep recommendations subtle and non-intrusive
-Provide clear explanations for system actions
-Maintain user control through manual override

Stakeholders

Have you considered all stakeholders?

This category is only partial filled.

Who are the main users/targetgroups/stakeholders for this technology? Think about the intended context by answering these questions.

Name of the stakeholder
End users

How is this stakeholder affected?
They directly interact with the system. Their comfort, productivity, and sense of privacy are affected by how the system behaves and adapts.

Did you consult the stakeholder?
Yes

Are you going to take this stakeholder into account?
Yes

Name of the stakeholder
Innovation Unit at Ahrend

How is this stakeholder affected?
They are responsible for defining the product vision and innovation direction. The system outcomes influence future product strategy and competitiveness.

Did you consult the stakeholder?
Yes

Are you going to take this stakeholder into account?
Yes

Name of the stakeholder
Technical Team at Ahrend

How is this stakeholder affected?
They are responsible for implementation. The system design must be technically feasible and compatible with existing hardware and architecture.

Did you consult the stakeholder?
Yes

Are you going to take this stakeholder into account?
Yes

Name of the stakeholder
Facility Managers

How is this stakeholder affected?
They manage workspace operations. The system may impact maintenance, energy usage, and overall workspace efficiency.

Did you consult the stakeholder?
No

Are you going to take this stakeholder into account?
No

Did you consider all stakeholders, even the ones that might not be a user or target group, but still might be of interest?
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Now that you have thought hard about all stakeholders, what improvements would you like to make? List them below.
Key improvements include the following:

-Provide clear feedback to users about system actions
-Allow manual override to maintain user control
-Ensure privacy through minimal data processing
-Involve technical and IT teams for feasibility and compliance
-Consider different usage scenarios (individual vs group)

Data

Is data in your technology properly used?

Are you familiar with the fundamental shortcomings and pitfalls of data and do you take this sufficiently into account in the technology?

The system considers that sensor data may be inaccurate or incomplete, and decisions are based on simplified interpretations of real-world conditions.

How does the technology organize continuous improvement when it comes to the use of data?

The prototype does not store data, so learning over time is not implemented. Improvements would require controlled feedback mechanisms.

How will the technology keep the insights that it identifies with data sustainable over time?

Insights are not stored long-term.
The system operates in real-time only, which limits long-term optimization but reduces privacy risks.

In what way do you consider the fact that data is collected from the users?

Data is processed but not stored.
Users do not generate persistent data profiles, which reduces risks related to tracking or misuse.

Now that you have thought hard about the impact of data on this technology, what improvements would you like to make? List them below.

Key improvements include the following:

-Add user feedback to validate system decisions
-Improve robustness of sensor data interpretation
-Ensure clear communication of how data is used
-Maintain minimal data collection approach

Inclusivity

Is your technology fair for everyone?

This category has not been filled yet.

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Transparency

Are you transparent about how your technology works?

Is it explained to the users/stakeholders how the technology works and how the business model works?

Partially.
The system behavior can be explained through a simple user interface, but currently the internal logic and decision-making are not fully visible to the user.

If the technology makes an (algorithmic) decision, is it explained to the users/stakeholders how the decision was reached?

Not fully.
The system makes automatic adjustments (e.g., lighting or ventilation), but without clear explanation, users may not understand why these changes happen.

Is it possible to file a complaint or ask questions/get answers about this technology?

Not in the current prototype.
There is no formal mechanism for feedback or complaints, but this could be added in future versions.

Is the technology (company) clear about possible negative consequences or shortcomings of the technology?

No, not explicitly.
The system does not currently communicate potential limitations or risks, such as incorrect detection or inappropriate automated behavior.

Now that you have thought hard about the transparency of this technology, what improvements would you like to make? List them below.

-Showing simple feedback on the UI (Adjusting ventilation due to CO level)
-Indicating when sensors or cameras are active
-Explaining system actions in a simple, non-technical way
-Allowing users to question or override system behavior
-Clearly communicating system limitations

Sustainability

Is your technology environmentally sustainable?

This category has not been filled yet.

Future

Did you consider future impact?

What could possibly happen with this technology in the future?

The Qabin could evolve into a fully intelligent workspace that adapts to users in real time.
This may redefine workplace expectations, where users expect environments that support their health, safety, and productivity automatically.
From a business perspective, it can help Ahrend reposition itself competitively in the smart pod market.

Sketch a or some future scenario (s) (20-50 years up front) regarding the technology with the help of storytelling. Start with at least one utopian scenario.

Intelligent pods become standard in workplaces.
They continuously support users by:

-Improving posture and reducing health issues
-Suggesting breaks to prevent fatigue
-Detecting emergencies such as sudden falls
-Maintaining optimal air quality proactively

Users experience healthier, safer, and more productive work environments.
Ahrend becomes a leader in smart workplace solutions.

Sketch a or some future scenario (s) (20-50 years up front) regarding the technology with the help of storytelling. Start with at least one dystopian scenario.

Workspaces become overly automated and monitored.
Users may feel constantly observed, reducing comfort and trust.

Companies may prioritize performance over well-being, turning intelligent systems into control tools rather than support tools.

Would you like to live in one of this scenario's? Why? Why not?

I would prefer the positive scenario, as long as:

-User control is maintained
- Privacy is protected
-Technology remains supportive, not intrusive

What happens if the technology (which you have thought of as

ethically well-considered) is bought or taken over by another party?
The technology could be used differently, potentially prioritizing data collection or control instead of user well-being.

This creates risks such as:
-Misuse of sensing technologies
-Reduced transparency
-Loss of user trust

Impact Improvement: Now that you have thought hard about the future impact of the technology, what improvements would you like to make? List them below.
-Ensure privacy by design (local processing, no storage)
-Keep user control over automation
-Maintain transparency in system behavior
-Design the system primarily for user well-being, not monitoring
-Align business goals with user value, not only competitive advantage