Turning Tech into Value: Helping founders reframe a vape detection technology for end-user needs

INDUSTRY

Public space indoor air quality monitoring

SUMMARY

HumanLogic collaborated with the founders of Piera Systems to apply user-centric design principles in developing a product offering for managing indoor air quality in public spaces. This effort helped refine an initial, technology-driven concept into an end-user-centric product concept aimed at providing comprehensive vape management for a large school system in Canada.

The goal of the engagement was to adapt Piera Systems' [award-winning air quality monitoring technology](#) for use in a school environment requiring continuous detection of vape usage on school premises.

For this engagement, focused on a new business opportunity with a tight proposal deadline, HumanLogic guided Piera Systems towards an expanded product offering for a new addressable market. Initially, Piera Systems' business concept focused on providing detailed data for enterprises, small businesses, and schools, accompanied by a dashboard and alerts. This audience for a new product offering included additional high-priority personas such as buyers, IT Admins and end-users responding to air pollution incidents on a school campus.

The engagement involved remote workshop sessions held with Piera Systems' executive, product, and engineering team members located across North America.

CLIENT QUOTE/REFERENCE

"As the CEO of Piera Systems, I found that collaborating with Karen and Craig significantly accelerated our implementation for a business opportunity in a new market: vape management for schools.

We highly recommend Karen and Craig from HumanLogic to any company looking for expertise in planning, designing, and mitigating risks associated with new technology product concepts prior to their launch."
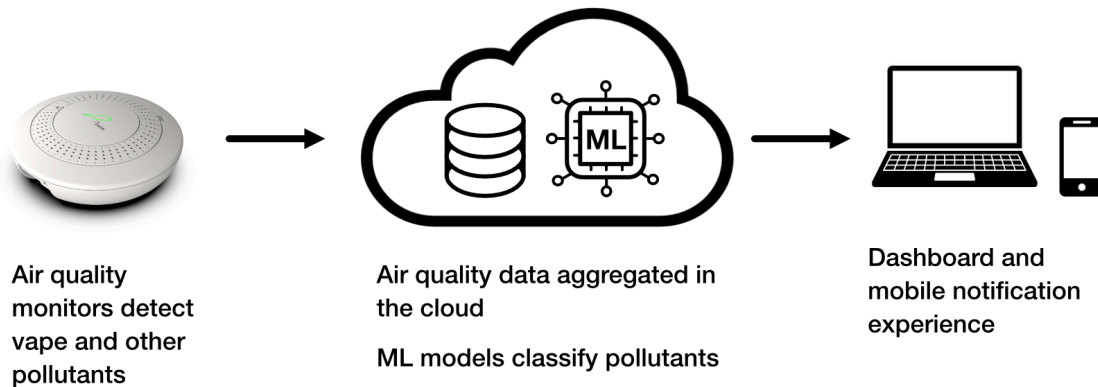**Vin Ratford, CEO and Co-Founder, Piera Systems**

BACKGROUND

[Piera Systems Inc](). specializes in designing Intelligent Particle Sensors and Air Quality Monitors that leverage their Particle Counting integrated circuits (ICs) for various applications. Piera Systems' unique ultra-low-power, high-precision signal processors deliver the most accurate and reliable real-time data, identifying dangerous particles in the air you breathe and improving human health by providing healthy, energy-efficient indoor spaces.

Piera Systems pioneers advanced sensing technology to detect and identify airborne substances, empowering healthier, safer environments everywhere

Air quality monitors detect vape and other pollutants

Air quality data aggregated in the cloud

ML models classify pollutants

Dashboard and mobile notification experience

Vape and smoke primarily consist of sub-micron particles, each with unique signatures that can be distinctly identified by Piera System's technology. Piera's solution includes AI-based models and heuristics to analyze additional gases, accurately and quickly detecting vape, smoke, and other aerosols. As people often attempt to mask the presence of vape or smoke, as well as AXE body spray, hair spray, and perfumes, Piera System's solution enables the detection and identification of these gases and aerosols.

Detecting particles and aerosols allows Piera Systems' software to report on events that can be monitored. It also tracks the time and duration of these events, sending alerts for necessary actions and remediation. In addition, continuous monitoring of air quality helps determine when the air is safe to breathe.
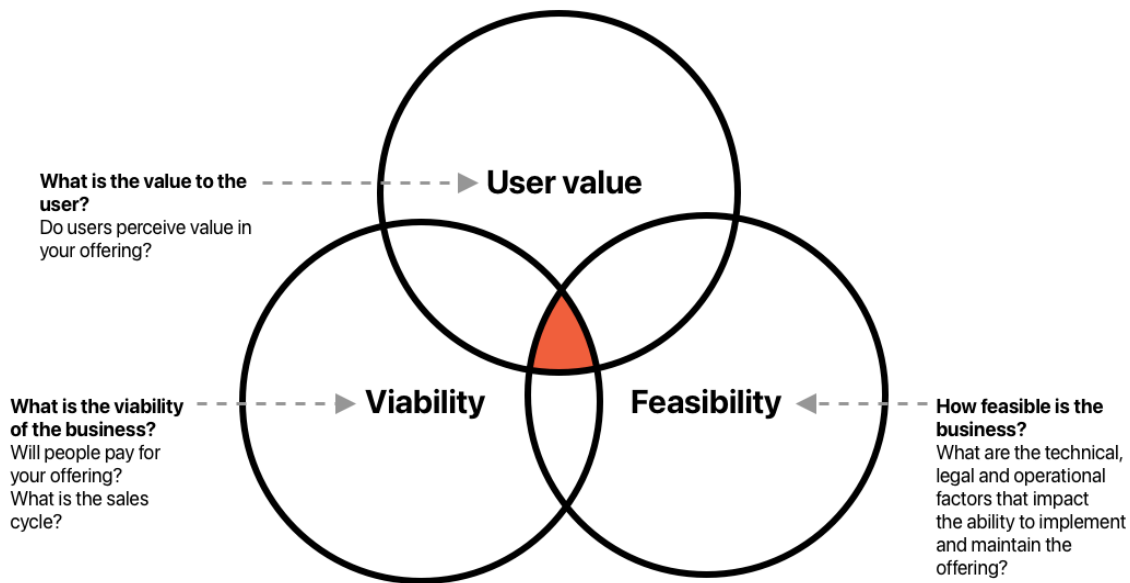
PROCESS

At the outset of the engagement, HumanLogic was tasked with evaluating the user experience of the SenseiAQ system in relation to adapting it for a use case involving indoor environmental monitoring to manage vaping, smoking, and "people incidents".

To initiate the evaluation process, HumanLogic conducted workshops and served as thought partners, posing critical questions to understand, analyze, and identify the sweet spot of value creation for Piera Systems' offering. Employing the methodology shown in the diagram below, as documented in our book "Envision Product: User Experience for Founders", helped the team tackle prioritization based on core dimensions of feasibility, viability, and the delivery of user value.

Prioritization Criteria

From "Envision Product: User Experience for Founders"

What is the value to the user?
Do users perceive value in your offering?

User value

What is the viability of the business?
Will people pay for your offering?
What is the sales cycle?

Viability

Feasibility

How feasible is the business?
What are the technical, legal and operational factors that impact the ability to implement and maintain the offering?

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Following the design methodology covered in our book, HumanLogic helped Piera Systems's founders test assumptions about the new use case, then developed and prioritized applicable new personas, examples of which are shown below.

Sample personas

Buyer persona

Role: School District Administrator
Procures the solution, provisions the district-level installation and manages the School Administrators in the district

District size:
Responsible for over 190,000 middle/high school students in the school district

Tasks:
Manage school admin users responsible for managing the monitoring of all schools

Motivations:
Improve overall health metrics for the school district, including air quality and reduction of incidents

End user persona

Role: School Site Responder
A teacher or janitorial staff member responsible for responding to vape events for a set of monitors at a school campus during a specific time period

School size:
Works at a high school with over 2,000 students

Tasks:
Respond to mobile notifications of vaping events using established playbooks

Motivations:
Troubleshoot, diagnose, and remediate assigned events in an effective timeframe

As the engagement progressed, HumanLogic partnered closely with Piera Systems to map and optimize "user paths to value" — detailed user journeys that reveal how key personas derive benefit from the product.

By applying a Design Thinking framework, HumanLogic helped Piera reimagine its solution, expanding its appeal to a broader segment of buyers and users. For each

priority persona, the team developed comprehensive journey maps highlighting decision points, behavioral insights, and key engagement milestones.

One such journey, shown in the diagram below, represents the journey for the "School Site Responder" — a frontline persona responsible for ensuring safety and rapid response in K-12 environments.
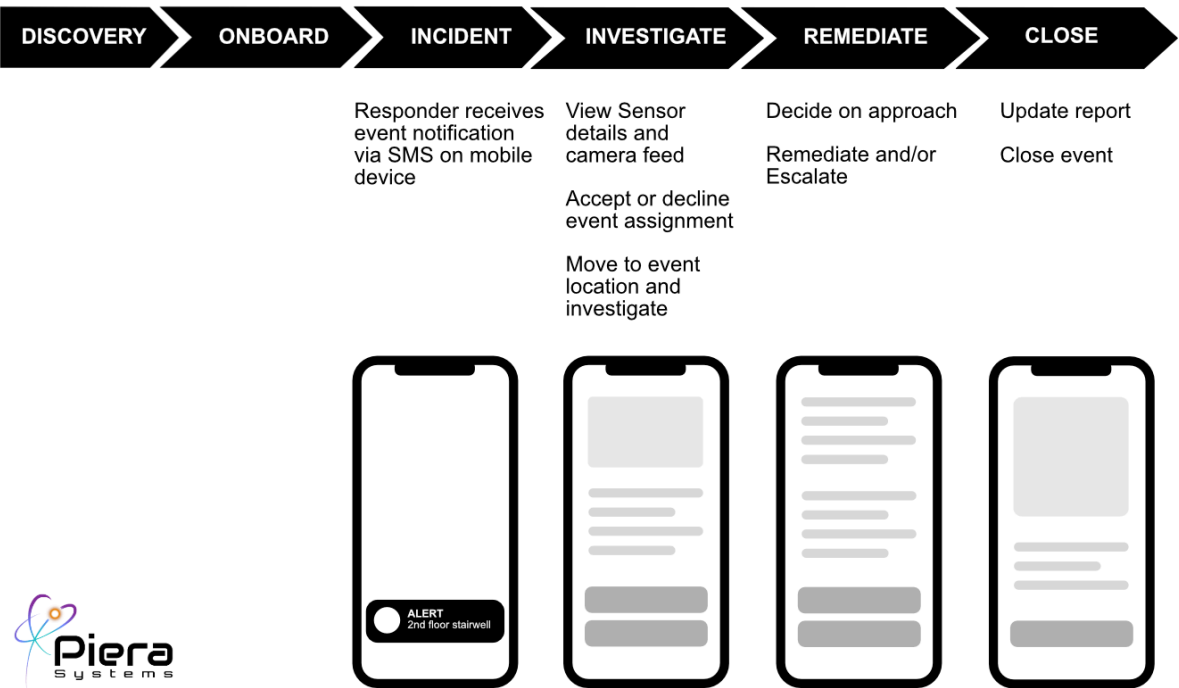
After designing the end-to-end journeys for the new target personas, HumanLogic focused on designing the user experience flows for the School Site Responder persona to define the experience and inform the specifications for the product and engineering team to build the product.

BUSINESS RESULTS

After working with Piera Systems' co-founders to clarify the initial offering, HumanLogic guided the product team in generating and articulating a product offering with a focused value proposition for a new audience, including end-users and buyers.

Following the completion of our engagement, Piera Systems announced that its Canāree IX6 Vape Detector with Noise Monitoring has been selected as a Vendor of Record (VOR) by Supply Ontario.

This selection is part of the Province of Ontario's initiative to reduce vaping in schools and other public spaces. For more information about this significant business achievement, please visit this link.

FOR MORE INFORMATION

For more information on how HumanLogic can help enhance your product user experiences while reducing risk in developing products and solutions, please visit www.humanlogic.com.

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