



Quintil
Valley

CHALLENGE 2

“Reduction and Reuse of Textile”

CHALLENGE CONFECCIONES TRENTO S.A.C

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CHALLENGE 2: Textile Waste Reduction and Reuse

How might we optimize the cutting and sewing process to reduce waste, avoid rework, and improve profitability?

Context:

At Confecciones Trento S.A.C., the cutting and sewing processes face challenges related to textile waste and operating costs due to the lack of automation and real-time process adjustments. The goal is to transform this area into an intelligent and adaptive process by leveraging sensors, optimization algorithms, and AI models to capture, analyze, and feed back data from fabric intake to the finished garment.

This will enable waste reduction and material consumption optimization, achieving a dual benefit:

- Sustainability: Less textile waste and better resource utilization.
- Economic efficiency: Optimized fabric use and reduced costs.

The solution will drive faster, more profitable decision-making, aligning Trento with a sustainable and efficient production model.

Identified Problem:

Confecciones Trento S.A.C. faces significant annual waste, representing an economic loss. The cutting and sewing process is planned with safety margins based on standards, which leads to unnecessary waste and a lack of optimization in material usage.

Main Objective:

Reduce waste by implementing a comprehensive solution that detects defects before cutting, optimizes patterns using artificial intelligence, and captures real-time data to adjust production parameters — all with the goal of improving economic, social, and environmental sustainability.

Key Success Indicators:

- Reduction of annual textile waste
- Savings in materials and operational costs

Desired Solutions:

- IoT sensors for real-time data capture during cutting and sewing
- Pattern optimization algorithms
- Smart nesting oriented toward defect detection and management
- AI and machine learning for automatic error detection and correction
- Automated feedback platform for real-time process adjustments

Undesired Solutions:

- Technologies with Technology Readiness Level (TRL) below 6
- Manual processes without data support or automation
- Isolated technologies with no integration capabilities.