



POLYTECH®



EVAC

Achète ta paix



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Project Context

EVAC is a system-oriented engineering project initiated from a critical observation: in emergency situations (natural disasters or industrial incidents), time pressure and stress significantly reduce decision-making efficiency. Rapid, structured, and reliable response becomes essential to ensure safety.

Project Objective

- Design a compact and integrated emergency response system that supports rapid evacuation under critical conditions.
- Provide a system-level solution combining protection, autonomy, and operational practicality.
- Focus on workflow clarity, reliability, and feasibility, rather than individual components alone.

Valeur ajoutée

- Compact and lightweight system architecture, optimized for portability and usability.
- Modular and adaptable design, allowing configuration for different environments and user needs.
- Integrated technologies (e.g. GPS, solar-powered energy supply, tracking support) to enhance autonomy and situational awareness.
- Reliability and risk reduction, ensuring essential functions remain accessible during evacuation scenarios.

ENGINEERING PROBLEM STATEMENT

Core Challenge

How can a rapid, reliable, and structured emergency response be ensured when stress and panic significantly limit human decision-making and reaction time?

Engineering Perspective

In emergency scenarios, individuals often fail to:

- Identify critical needs quickly
- Gather essential equipment under time pressure
- Maintain situational awareness

This creates a system-level problem, not a product-level one:

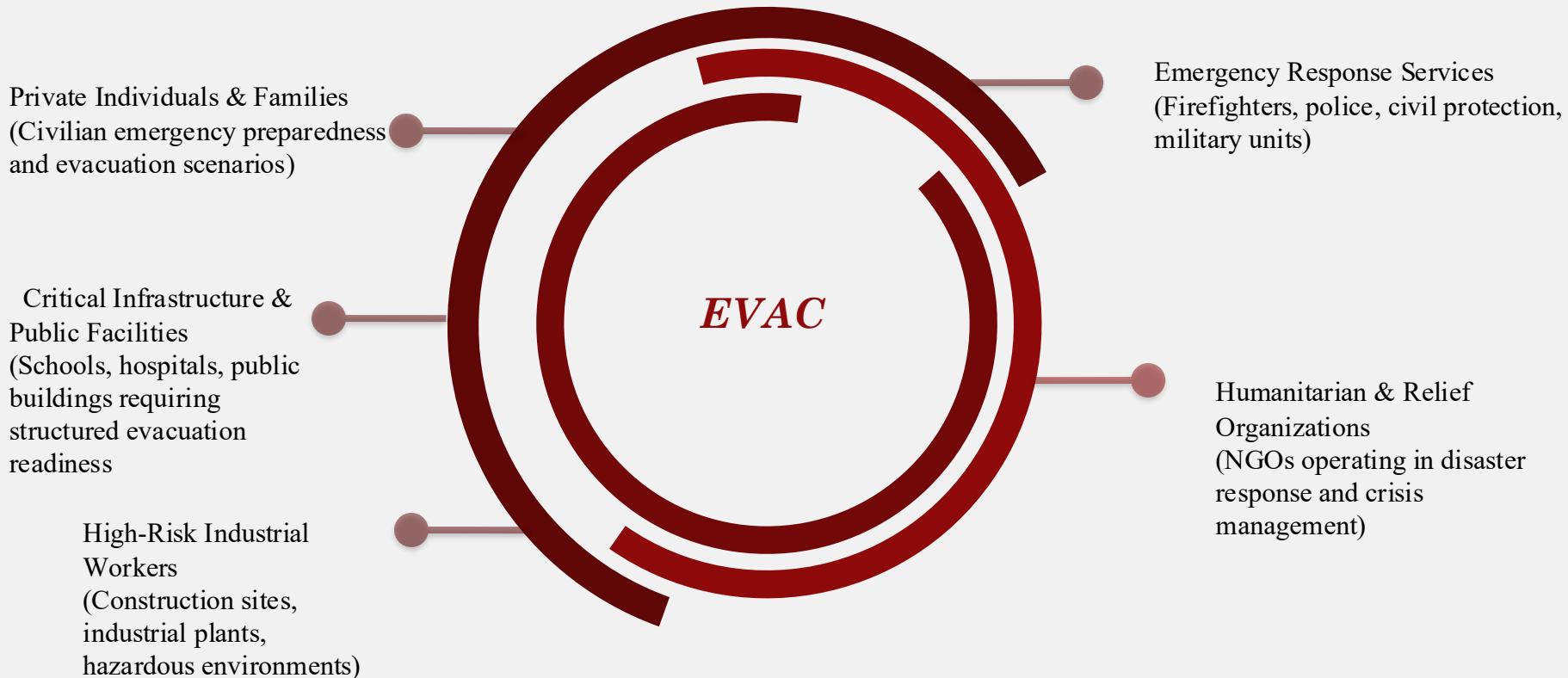
the absence of a predefined, reliable workflow for emergency response.

Problem Definition

The challenge is to design a system that minimizes cognitive load, reduces response time, and ensures immediate access to essential functions under critical conditions.



Users, Use-Cases & Operational Context



Benchmarking & Competitive Landscape



Existing Market Solutions

Current emergency kits available on the market primarily focus on individual product completeness, offering predefined sets of survival equipment.



Lifesaver Bag

Pre-packed survival kits for private users



Ready America
Standardized emergency bags for civil protection



Red Cross Emergency Kit
Medical emergency kits designed for first aid use

These solutions typically address content availability, but not system interaction or workflow optimization.

Engineering Gap Identified

The analysis shows that existing solutions:

- Are static and non-adaptive to different operational scenarios
- Lack a system-level approach linking user needs, response time, and usability
- Do not address human factors such as stress, panic, and reduced decision-making capacity
- Focus on “what is inside” rather than how the system is used under pressure

EVAC

Differentiation

EVAC is positioned not as a product, but as a system-oriented emergency response solution, emphasizing:

- Workflow-driven design instead of static equipment lists
- Reliability and usability under stress conditions
- Modular and adaptable system architecture for different users and environments
- Integration of technology to support situational awareness and autonomy

Focused Benchmark: DIMATEX (France)

DIMATEX is identified as a key reference player in the French market, recognized for designing high-performance technical carrying solutions for security, rescue, and defense professionals.

From an engineering perspective, DIMATEX products demonstrate:

- Robust and modular designs, optimized for demanding operational environments
- Strong emphasis on ergonomics, durability, and material selection
- Proven manufacturing quality adapted to professional intervention scenarios

However, these solutions are primarily equipment-oriented, focusing on physical robustness and modular storage, rather than on system-level workflow optimization or human-factor-driven emergency response design.

This analysis highlights an opportunity for EVAC to differentiate by introducing a workflow-centered, system-oriented emergency response architecture, integrating usability under stress, process clarity, and operational reliability alongside physical durability.



Finished product



Protective Equipment Module

Provides personal protective equipment adapted to different operational scenarios and environmental risks.

Protection & Shelter Module

Provides essential protection against environmental conditions, focusing on safety, thermal insulation, and basic shelter requirements.

Communication & Visibility Module

Supports situational awareness through lighting and communication tools, enabling coordination and orientation in low-visibility or high-stress environments.

Personal and important papers



Medical & Hygiene Module

Addresses immediate first-aid and hygiene needs to reduce risk and maintain basic health standards during emergencies.

Tools & Survival Support Module

Includes essential tools designed to support adaptability, basic repair, and survival tasks under constrained conditions.

Personal Assets & Documentation Module

Ensures secure storage of critical personal documents and valuables, minimizing loss and post-evacuation administrative risk.

Market Context & Feasibility Analysis



To assess the feasibility and relevance of the EVAC system, the current survival and protection systems market was analyzed from an engineering and application perspective.

Market Overview

- The global survival kit market is estimated at approximately USD 5 billion (2024) and is projected to reach nearly USD 8 billion by 2035, indicating sustained long-term demand.
- The personal and home protection segment follows a similar trend, with an estimated annual growth rate of around 9%.
- Demand growth is strongly correlated with the increasing frequency of natural disasters and rising awareness of personal and infrastructure-related risks.
- While North America currently represents the largest market, Europe shows significant and accelerating growth, driven by regulatory focus on safety and emergency preparedness.

Engineering Relevance

This market evolution highlights a growing need for reliable, structured, and system-oriented emergency solutions, particularly those addressing usability, response time, and operational reliability rather than isolated product features.

Development & Differentiation Opportunities

Several opportunities were identified to strengthen the EVAC system from a design, engineering, and deployment perspective:

System-level differentiation

Modular and adaptable architecture designed to support diverse use cases, including urban environments, outdoor conditions, and family emergency scenarios.

Local manufacturing & quality focus

Emphasis on durable materials, controlled production standards, and sustainable design principles aligned with European manufacturing expectations.

Functional innovation

Integration of key subsystems such as solar-assisted power supply, water filtration, and optimized storage layout to enhance autonomy and operational reliability.

Dual-use applicability

Designed for both general civilian use and safety-oriented professional contexts, enabling scalability across different user profiles.

Flexible deployment channels

Compatibility with multiple distribution and deployment models, including direct-to-user delivery, specialized retailers, and institutional partnerships.



**Thank you for your time — we look forward
to your questions**

