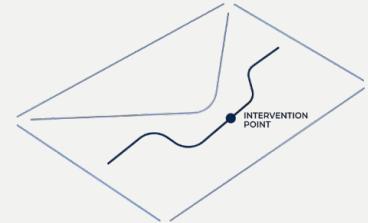


Envelope.

Right before the edge.

Derin Bilgin

AI systems work —
until conditions change,
and then they can fail
without warning.



Market.

Autonomous systems are entering the real world, but safety is still handled with static tools in a dynamic environment.

How the market solves today?

- **Design-time safety analysis** proves safety on paper but can't adapt after deployment.
- **Offline testing and simulation** cover known cases but miss real-world uncertainty.
- **Conservative operating limits** reduce risk by reducing autonomy.
- **Blunt runtime safeguards** rely on shutdown instead of control.

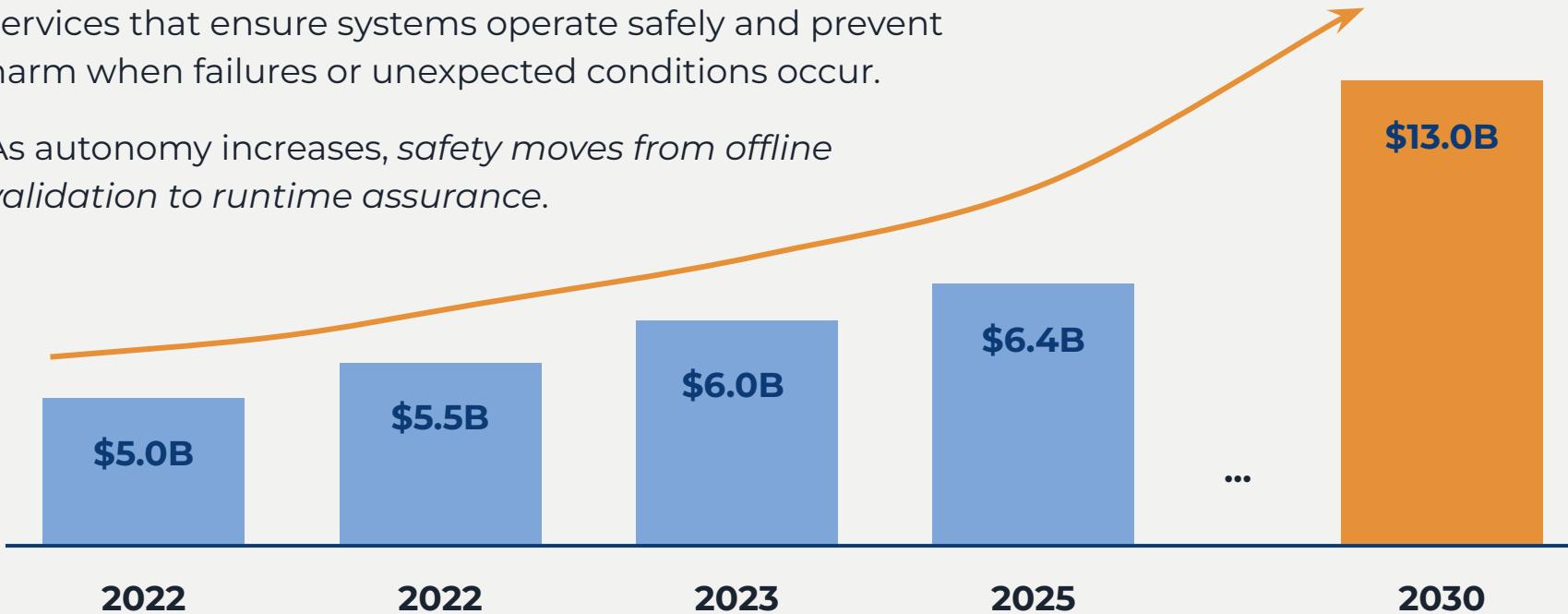
Why are these failing?

- **Static safety assumptions** fail as conditions change.
- **Long-tail failures** remain unavoidable.
- **All-or-nothing intervention** leaves no middle ground.
- **Fragmented tooling offers** no real-time safety answer.

Market: Size.

The **functional safety market** covers technologies and services that ensure systems operate safely and prevent harm when failures or unexpected conditions occur.

As autonomy increases, safety moves from offline validation to runtime assurance.



Market: Size.

SOM

Hamburg aviation
autonomy &
assurance

~\$100–300M

SAM

European
autonomy &
safety software

~\$60B

TAM

Global
safety-critical
autonomy market

~\$300B

Solution.

Autonomous systems × Safety assurance × AI decision support

Envelope adapts safety margins in real time, combining physics-based risk with AI reasoning to stay explainable and safe.

Envelope does not replace controllers - it *supervises* them.

Result: fewer unnecessary interventions without compromising safety.



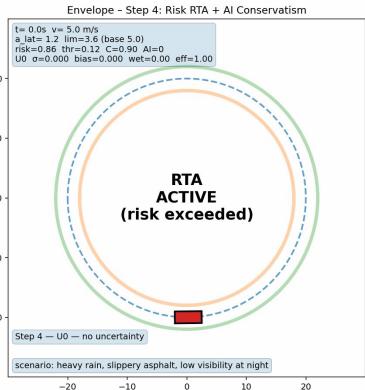
Unsafe - without RTA



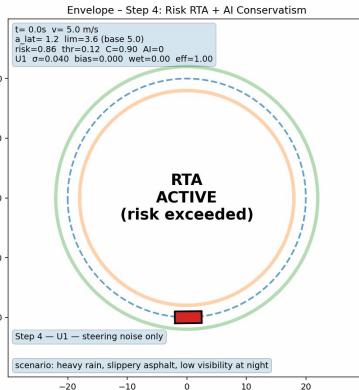
Safe - with RTA

Solution: Uncertainty Ladder.

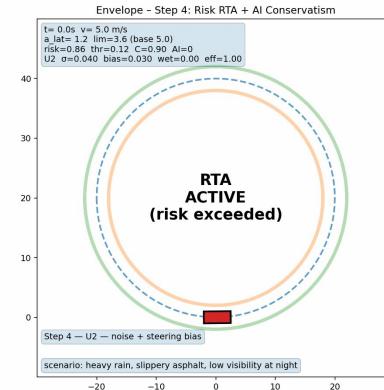
We've created an **Uncertainty Ladder** to animate our models for different uncertainty stages.



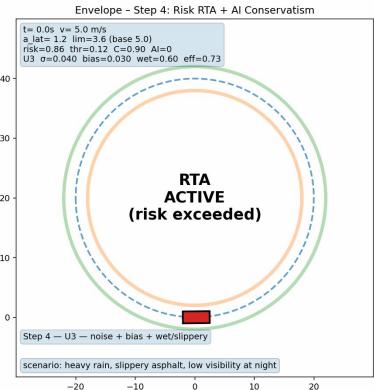
No uncertainty



Steering noise

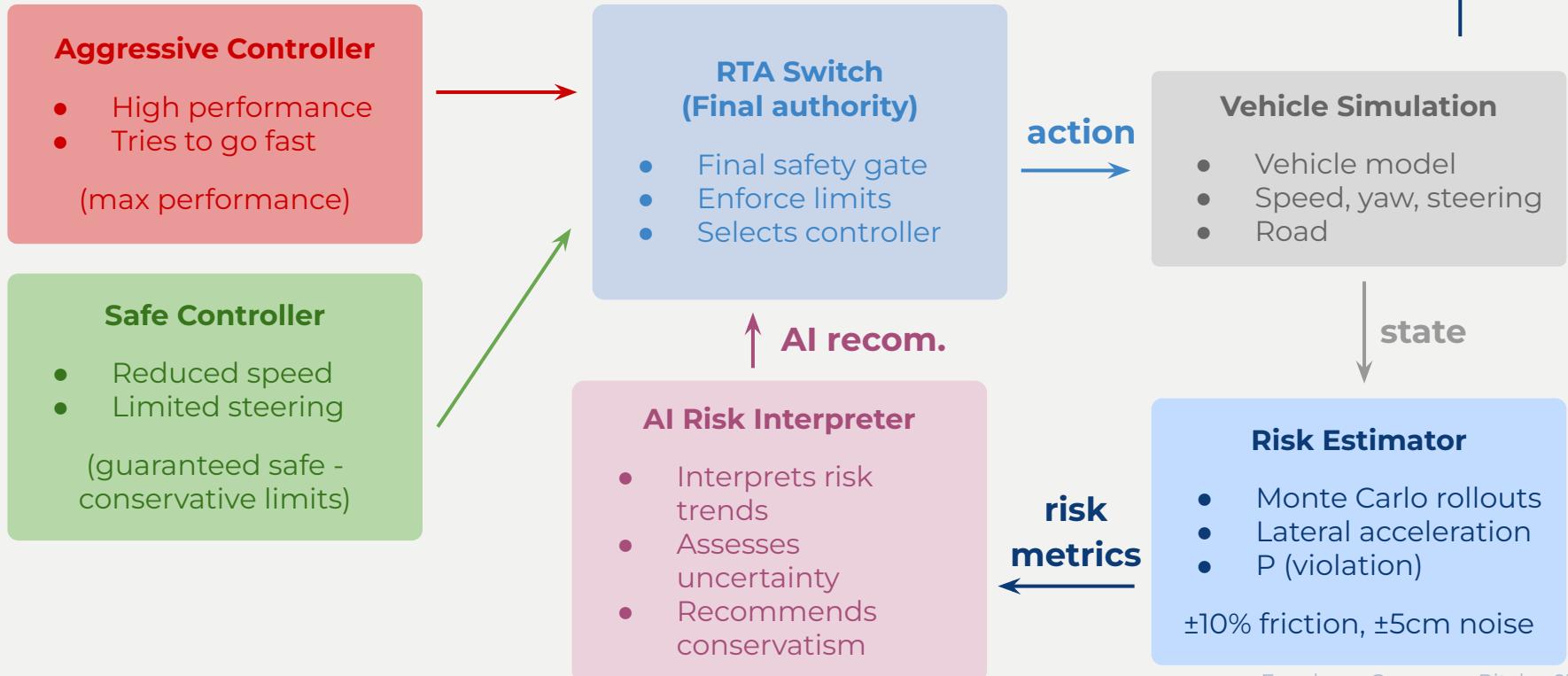


Noise + Steering bias



Noise + Bias + Wet/Slippery

System Architecture.



Advantage.

Cost leverage

Existing solutions are either:

- Overbuilt and expensive, or
- Custom-built internally and costly to maintain

We offer a cheaper starting point with pricing that scales only when value is proven.

Speed & simplicity

Switching removes:

- Custom maintenance
- Manual intervention
- Latency or reliability issues

Teams can be live in days, not months.

Measurable

The product delivers an immediate, quantifiable win (e.g. faster analysis, lower infra cost, fewer errors), making the switch an easy internal justification.

Business Model.

We operate a **B2B SaaS model** combining annual licenses with *usage-based pricing* to drive high-margin, recurring revenue and built-in expansion.

Base fees: \$3K – \$10K

Mid market: \$10K - \$30K ARR

Enterprise: \$50K – \$150K+ ARR

Annual platform license plus usage-based pricing at **\$0.01–\$0.05 per unit**, driving expansion as usage grows

75–90% gross margins, with **~\$3K – \$5K** annual variable cost on a **\$20K ARR** customer, driven primarily by compute and data infrastructure; marginal cost per additional usage unit is low, enabling profitable expansion as customers scale usage.

GTM Plan.

Our target teams already doing this problem in a hacky or expensive way (custom scripts, spreadsheets, legacy tools, or in-house systems). These users already feel the pain daily and don't need education, **only a better tool**.

First 10 customers

The first 10 customers come from direct, personalized outreach by the founders to:

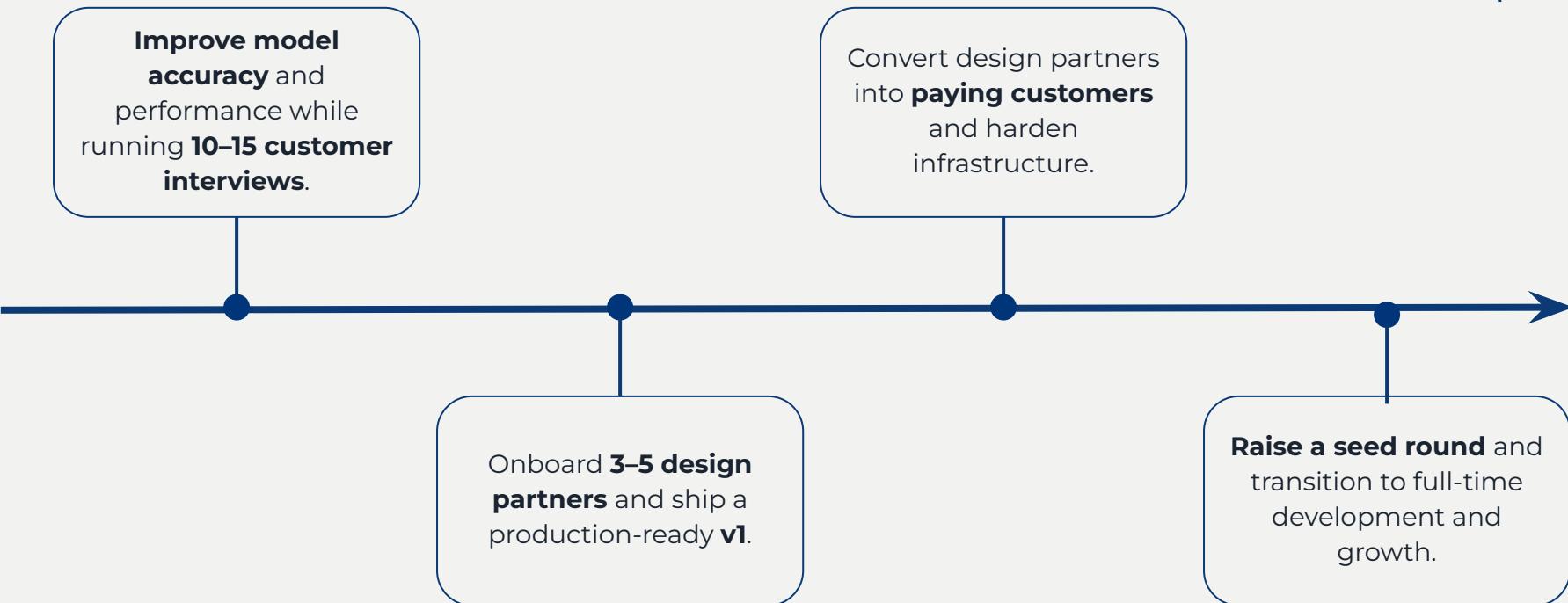
- People maintaining internal tools
- Teams posting jobs related to this problem
- Engineers / analysts complaining publicly (GitHub issues, Slack communities, forums)

Each message references their current setup and offers a fast, concrete win (e.g. "replace X script," "cut latency by Y," "remove manual step Z").

Distribution advantage

- **Embedded workflows:** Integrates into tools teams already use, enabling low-friction, incremental switching
- **Word of mouth:** Tight user communities drive warm intros after successful early deployments
- **Founder-led sales:** Direct access to builders builds trust and shortens early sales cycles

Roadmap.



Why Envelope? Why now?

Teams still rely on fragile, custom-built systems for real-time analysis, but Envelope is here to change this by replacing internal hacks with a **scalable, off-the-shelf solution**.

Why us?

We've built and operated the core of the real-time systems, giving us first-hand experience with the tradeoffs and failure modes that existing approaches don't handle well.

What we learned?

Rapid prototyping helped us narrow the problem, remove unnecessary complexity, and show how much can be achieved quickly when AI works alongside us.



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