



Promoting safer, smarter and sustainable cities

## **PARTNERS PRESENTATION**

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# Problem

Road accidents are the 8<sup>th</sup> leading cause of death in the world, and the number 1 cause from 15 to 29 years old (World Health Organization).

In cities, almost 40% of the fatal accidents are in crosswalks, and the main causes are the excessive speed and inappropriate illumination.

Speed bumps, traffic light signs and crosswalk illumination are the main solutions currently used, but these have two common problems: they depend on the drivers' behavior and don't have economic return.

# Our Solution

A device to implement in the pavement surface that reduces the vehicles' speed without any driver action, without induce impact in the vehicle nor discomfort to its occupants.

This device is able to extract kinetic energy from vehicles and convert it with a very high efficiency into electrical energy, which can be used to illuminate the road, crosswalk and other electrical equipment.

Finally, it also monitors the number of vehicles, its speed and weight, the energy produced and consumed in the place, being able to adjust the energy consumption to the real needs, and to provide data to authorities, to optimize road safety, traffic flows and energy consumptions.



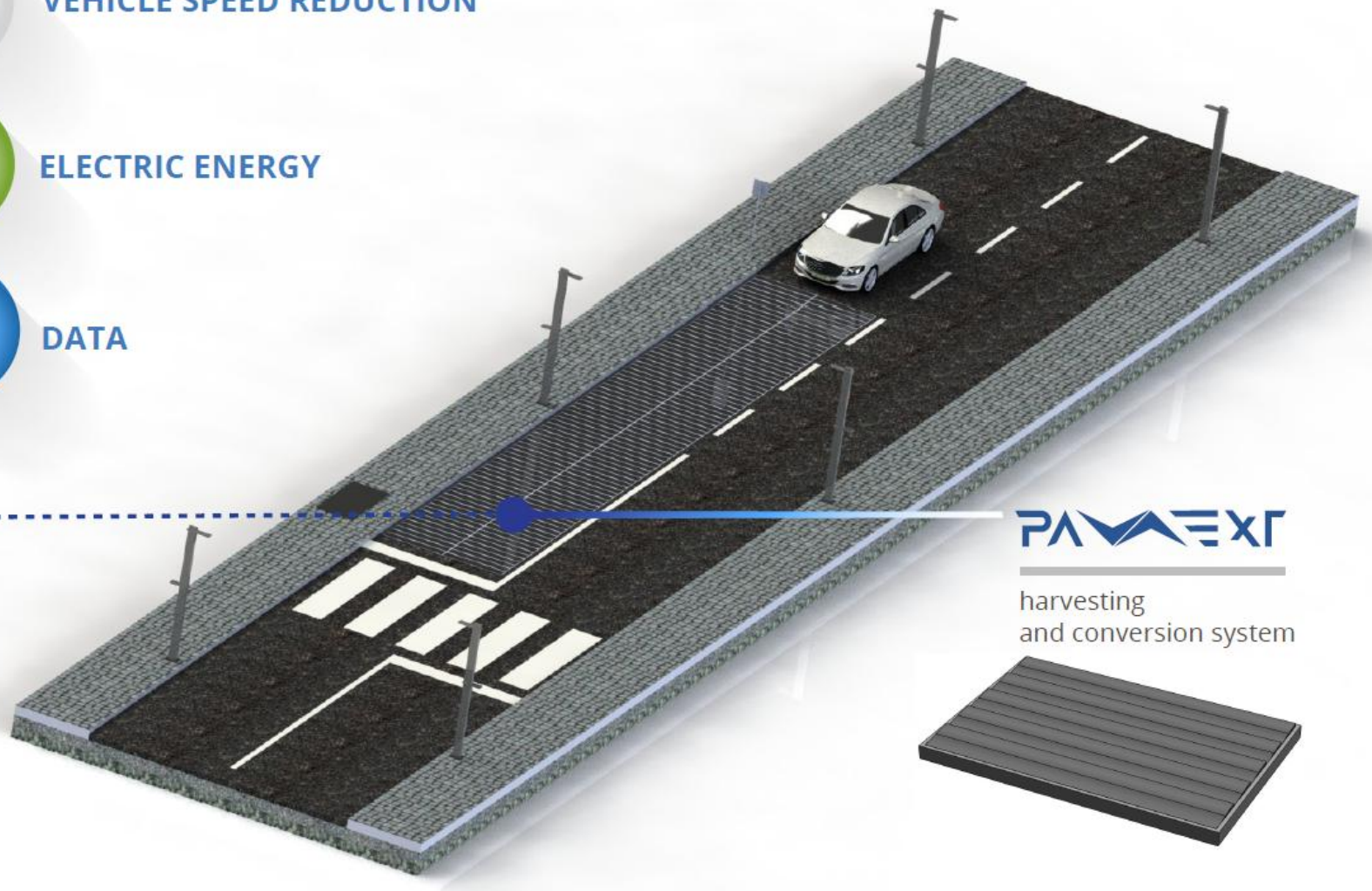
VEHICLE SPEED REDUCTION



ELECTRIC ENERGY



DATA



**PAVNEXT**  
harvesting  
and conversion system



# Value Proposition

Our value proposition is based on three key metrics:

- 1) Our solution increase road safety in crosswalks by 60% through an appropriate speed reduction and illumination;
- 2) It reduces the electrical consumption of the grid by 90% based on the energy production and in the reduction of the energy consumption;
- 3) And it allows to have the payback of the investment in 5 years, being the first road safety solution to have an economical breakeven.

# Competitive Advantages

Pavnext is the first solution to integrate these four features: autonomous speed reduction, electrical energy generation, traffic and energy monitoring, and energy efficiency.

It is the first solution to reduce the vehicles' speed without depend on the drivers' behavior and to promote road safety autonomously from the infrastructure.

It is the most efficient solution to generate electrical energy in the road pavement.

It is the first road safety solution to provide an economical breakeven.

# Milestones Achieved

After 4 years of R&D, we have:

- ✓ Validated prototypes in relevant environment (TRL6)
- ✓ Registered two patents in Portugal and one PCT (with worldwide extension) patent
- ✓ Got industrial partners to support the product development
- ✓ Got an SME instrument (Ph. 1) approved from the European Commission

# Who are we

Pavnext is Portuguese startup composed by a specialized team of engineers, a manager and a designer, having:

- ✓ 8 years of R&D experience in the Energy and Transportation fields
- ✓ 20+ scientific papers published in the Road Pavement Energy Harvesting field (one of the top-ranked teams in the field)
- ✓ Highly-experienced advisory board, composed by both academia and industry experts in the road safety and smart cities fields
- ✓ Industrial partners to support the product development



# Partnership Needs

We are looking for partners in the following areas:

- ❖ Road safety industry
- ❖ Cleantech industry
- ❖ Road construction industry
- ❖ Municipalities interested in implementing pilot plants
- ❖ Road safety associations

# Municipalities support

To validate our technology in real environment, we are looking for three audacious and disruptive municipalities to cooperate with us.

The support we need from municipalities is based on:

- ❖ Availability to apply to National/European funds, to support the implementation of the pilot plant;
- ❖ Technical cooperation in the implementation of our solution in the road pavement, including all the required licenses;
- ❖ Technical support in the analysis of results regarding the effectiveness of the solutions, with traffic and accidents data;
- ❖ Cooperation in the dissemination of the results at National and European level, including the organization of an event in the city.

A nighttime cityscape with a highway in the foreground. The highway has long-exposure light trails from cars, showing white and yellow streaks. The city skyline in the background is filled with illuminated skyscrapers of various heights and colors, including blue, white, and yellow. The sky is dark blue.

PAVEMENT