



EVS 38

**38th International Electric
Vehicle Symposium & Exhibition**
15 to 18 June 2025 - Gothenburg, Sweden

Market Dynamics of Electric Single-Person Vehicles in Sweden: Opportunities and Challenges





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Gothenburg, Sweden, 2025

Transport analysis – a knowledge agency for transport policy



- Our operations are designed to **develop policy-relevant knowledge** and supply the government with background information for transport policy development.
- We **evaluate, analyse and report** the effects of proposed and implemented measures in the area of transport.
- We are responsible for **collecting, compiling and disseminating official statistics** on transport and communications.
- We conduct environmental **scanning and monitoring** focusing on EU transport system and transport policy development and its effects on Sweden.



Assignment Directive and methods

Transport Analysis shall:

1. Map the provision and usage of electric single-person vehicles (ESPV) in Sweden.

2. Investigate the effects—both positive and negative—of the changing market* for e-scooters and other electric single-person vehicles.

3. Identify problems associated with these vehicles.

*The increasing share of privately owned vehicles is of particular interest.

The assignment does **not** include electric bicycles.

The assignment was reported to the Government Offices (Ministry of Rural Affairs and Infrastructure) on October 31, 2024.

Market Analysis:

- Mapping of supply in online and physical stores
- Interviews with retailers
- Contacts with the Nordic Micromobility Association (NMA)

User Surveys:

1. Household Survey:

1. Conducted via Norstat's web panel – 305 respondents
2. Focused on the household's most used vehicle and the primary user

2. Individual Survey:

1. Targeted members of Facebook groups for e-scooters – 107 respondents
2. Questions about personal use of their most frequently used vehicle
3. Additional questions about their purchase process and views on information → connected to the market analysis

Impact Analysis: Literature review and analysis of accident statistics from Strada

Problem Identification:

Primarily based on discussions with various industry stakeholders.



Types of Electric Single-Person Vehicles



- Electric single-person vehicles is a collective term for a group of vehicles that have become increasingly visible in traffic in recent years
- There are many different types and designs. The most common type is the electric scooter, also known as an e-scooter or e-kickbike.
- Other variants include powerful moped-like fat gliders and fat scooters, as well as various types of self-balancing electric boards such as e-skateboards, Segways, hoverboards, and airwheels (unicycles)
- What these vehicles have in common is that they are powered by rechargeable batteries.



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Regulatory Ambiguity and New Insurance Requirements



Legislation is complex – has not kept pace with technological development.



A bicycle if it stays under 20 km/h and 250 watts – but what if it doesn't?



Different authorities refer to different parts of the legislation – causing uncertainty about how the vehicle may be used.



Different definitions of power further complicate classification.

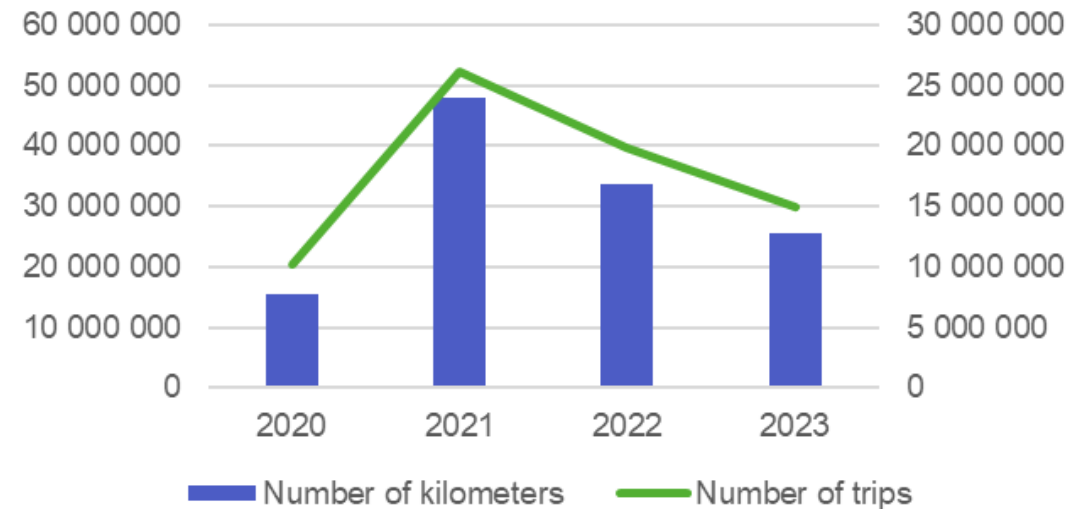
New Insurance Requirements since dec 2023

- Applies to electric vehicles without pedals or crank mechanisms if: designed to travel faster than 20 km/h, or designed to travel faster than 14 km/h and weighs more than 25 kg.
- No registration system for e-scooters – hard to know who owns or insures them.
- Insurance companies welcome a registration requirement
- Micromobility firms criticize the law – say it encourages lighter, less safe vehicles.



The Market for Shared E-Scooters

- Rapid and unregulated establishment starting in 2018.
- Regulatory shared e-scooters are bicycles in Sweden
- New regulations introduced in 2021–2022 — including parking rules, fleet caps, and increased fees — combined with the economic downturn, have led to reduced usage.
- Order has improved following the introduction of parking rules, general local regulations, or letters of intent.
- Many people who purchase their own e-scooter have previously rented one.





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The Market for Private Electric Single-Person Vehicles

- Sales of private e-scooters and other electric single-person vehicles are increasing
- There is a wide range of products available through online stores, physical shops, and various types of retailers
- Most respondents in our surveys purchased their electric single-person vehicle online
- Key product information such as motor power and maximum speed is sometimes missing from retailers, and it is rarely stated how the vehicles may be used or whether traffic insurance is required
- Consumers often search for information about product specifications. They rarely seek out information on laws and regulations, and the available information is generally perceived as unclear
- Few have taken in the recent changes to the Traffic Damage Act (according to the household survey). Many are unsure whether their vehicle requires traffic insurance.



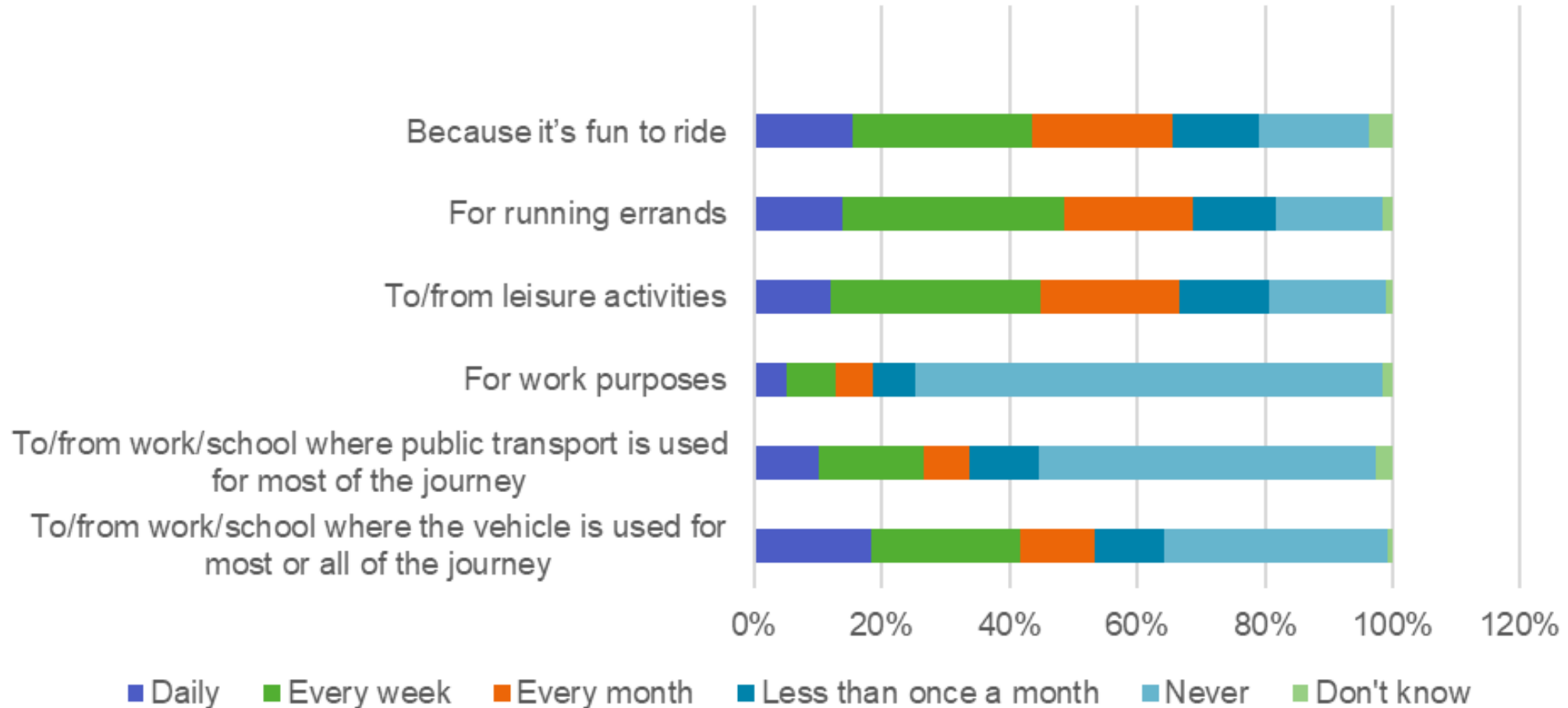
EVS 38 Use of Private Electric Single-Person Vehicles

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- E-scooters are the most common vehicle type in our surveys
- A large share of vehicles are fast and powerful – at least 65 percent of vehicles in the household survey do not meet the legal definition of a bicycle
- One in five users in the household survey is under the age of 15
- In some cases, they operate vehicles that do not qualify as bicycles under current law
- Nearly 30 percent do not know or are unsure which laws and regulations apply to their vehicle. They are unaware of how their vehicle is legally classified



Usage – Purpose and Frequency



For what types of trips is the vehicle used? Percentage of respondents by trip type.

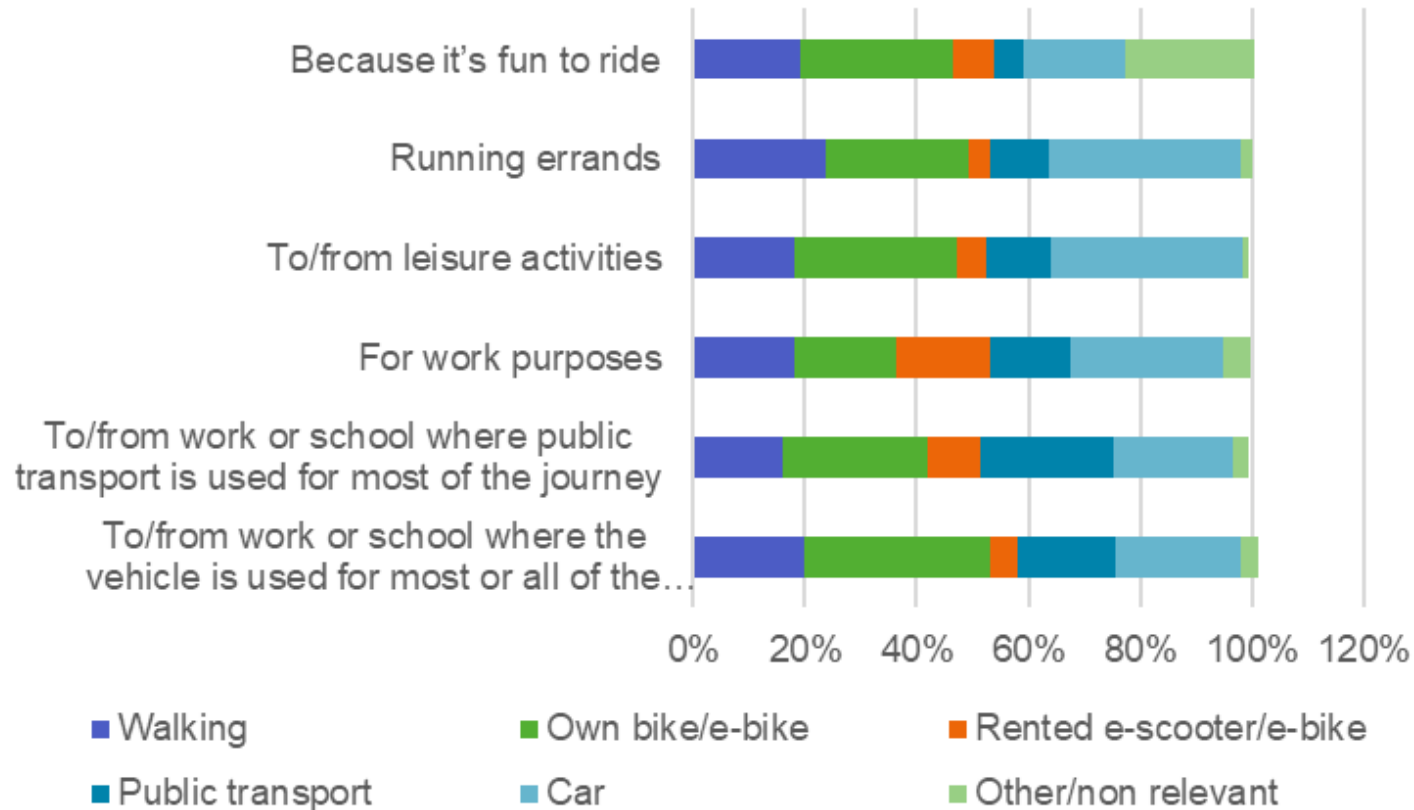
Note: Refers to the household survey, n=305. Multiple responses possible.



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Usage – What Modes of Transport Do They Replace?



If the electric single-person vehicle had not been used, which mode of transport would typically have been used instead for these trips? Percentage of users by trip purpose and type of transport mode. Note: Based on the household survey. Multiple responses possible. The number of respondents (n) varies depending on how many indicated that the vehicle is used for each trip purpose.

Effects of More Privately Owned Electric Single-Person Vehicles

Positive Effects

Accessibility – increases.

Health – partly positive due to a richer social life, exposure to fresh air, and replacing more sedentary activities?

Climate – unclear; partly replaces car trips, but is someone else using the car instead?

Environment – lower risk of littering compared to shared vehicles, but private scooters are difficult to lock securely. Will we see stolen e-scooters abandoned in nature like we do with stolen bicycles?

Business Effects – positive for manufacturers, retailers, and service providers

Negative Effects

- Traffic Safety – increased number of traffic accidents, rising share of injured young users.
- Health – partly negative, often replaces more active modes of transport; also risk of fires with the release of toxic gases.
- Congestion and Interaction – increases, e.g., when bringing scooters on public transport, causing irritation and accidents.
- Business Effects – reduced revenues for rental companies





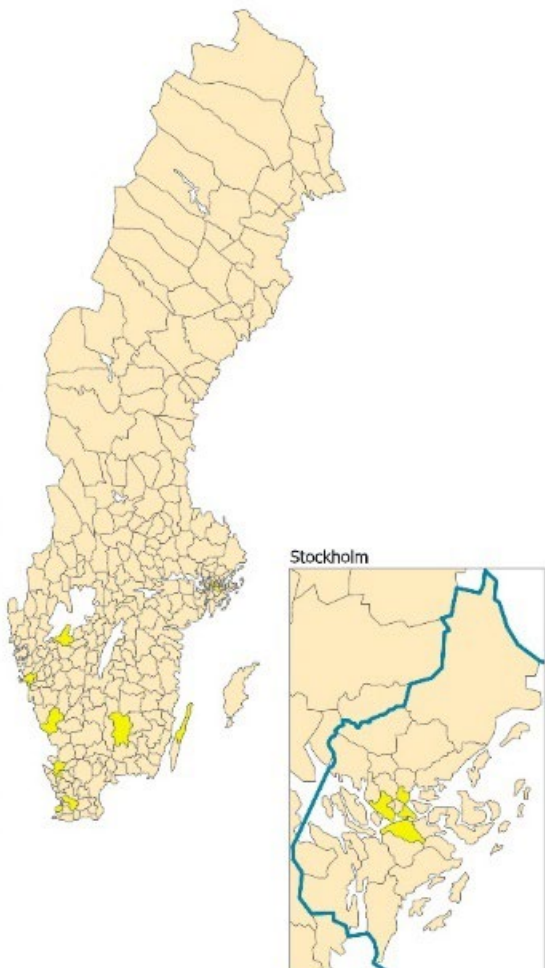
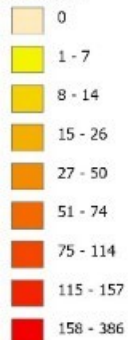
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E-scooter Accidents – from Strada Data base

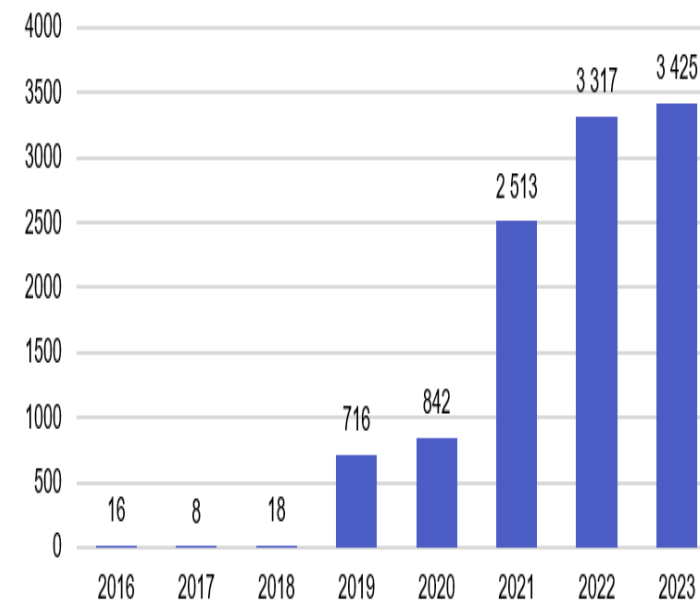
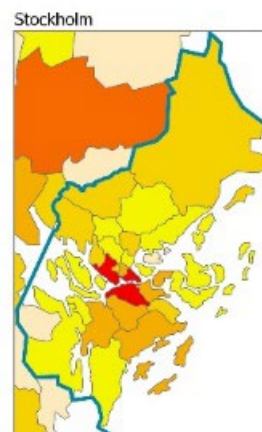
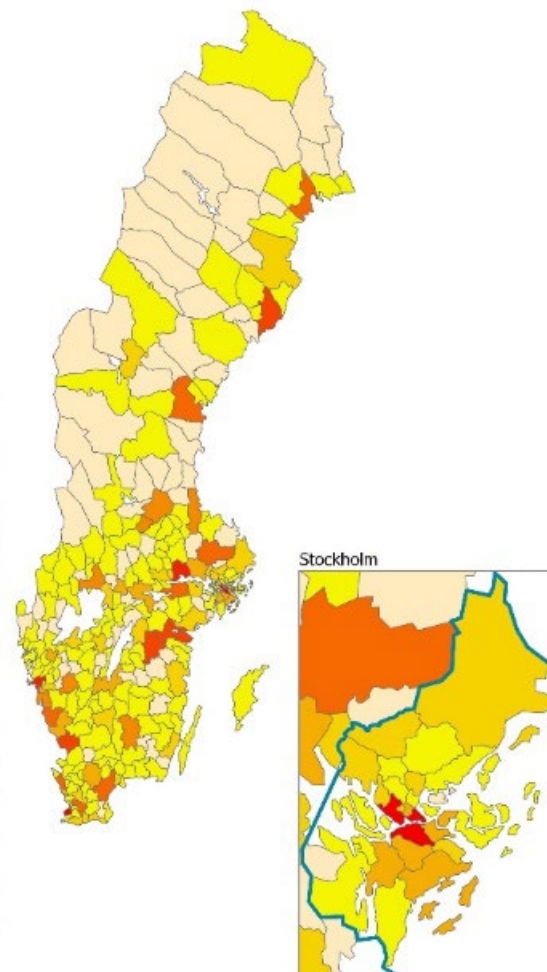
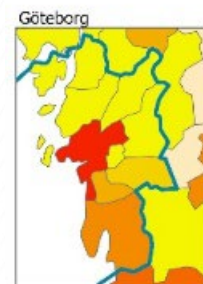
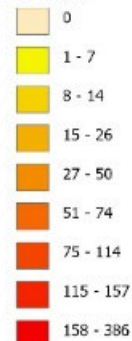
Antal olyckor per kommun

År 2018



Antal olyckor per kommun

År 2023



Figur 5.1. Antal olyckor med elsparkcykel inblandad per år, åren 2016–2023.



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Strada data for the years 2016–2023

- The share of young people involved in e-scooter accidents increased from 9 percent in 2019 to 25 percent in 2023
- More men than women are injured. Men also use e-scooters more frequently than women.
- Most accidents occur on pedestrian and bicycle paths, but a significant number also occur on roads used by cars.
- Single-vehicle accidents dominated the statistics in 2022–2023. Information about alcohol involvement is often missing — over 70 percent of cases lack such data.
- A relatively high share of accidents appear to involve privately owned vehicles — at least 37 percent in 2023.
- The proportion of injured children aged 7–14 riding e-scooters is higher in municipalities without rental services (26%) compared to those with such services (13%).

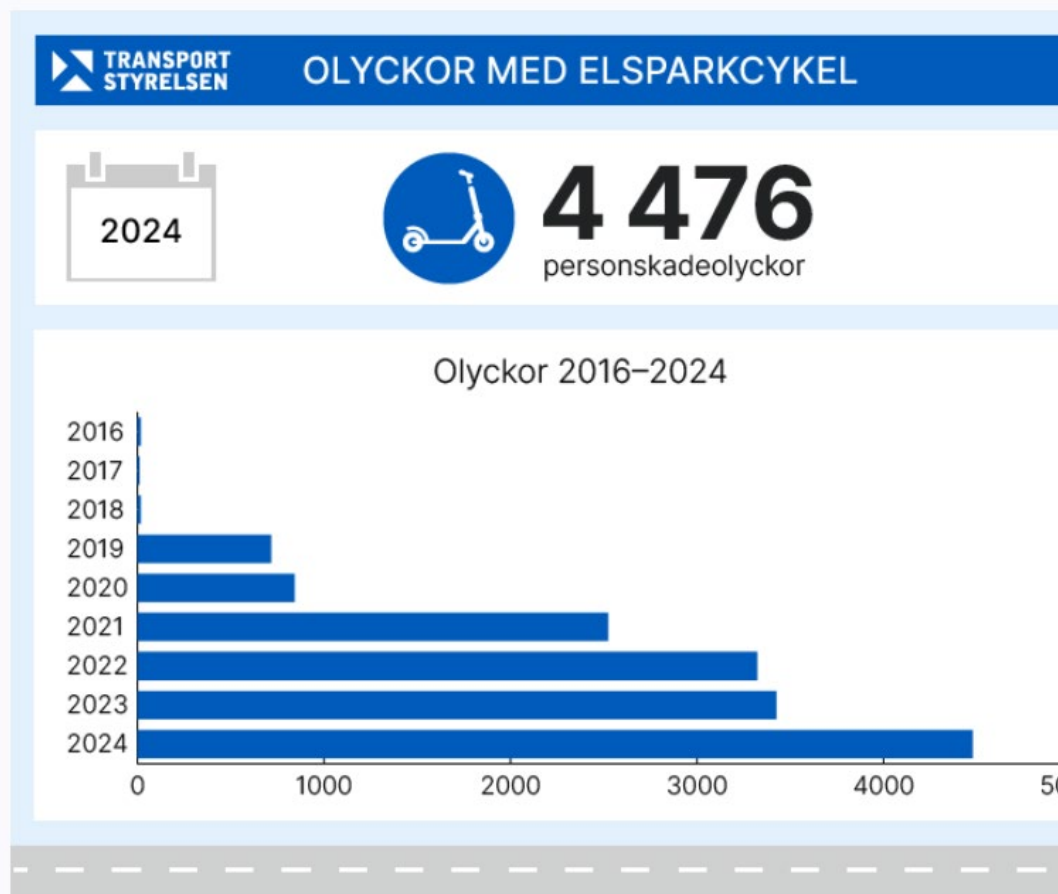




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Sharp Increase in Injury-Related E-Scooter Accidents



- The number of reported injury accidents involving electric scooters in Sweden reached **4,476** in 2024 — a **30.7%** increase compared to 2023
- In 2024, **five** people lost their lives in e-scooter accidents in Sweden
- Accidents involving children and teenagers under 18 have seen the **sharpest increase** in recent years – a concerning trend.
- Nearly 50% of injured users were **under 25**, and two-thirds were men.
- Rented e-scooter trips dropped by one-third in Stockholm since 2021, but accidents have not decreased – likely due to more privately owned e-scooters



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Transport Analysis recommendations

- **There is a need for clear and coordinated public information targeting both consumers and retailers about the Regulatory Ambiguity and New Insurance Requirements**
- **The new motor insurance requirement for certain electric single-person vehicles should be monitored and evaluated further.**
- **In light of the accident statistics, it may be relevant to review the usage requirements for these vehicles. This should be considered in future investigations and regulations.**
- **Continued monitoring and analysis of the market development and use of electric single-person vehicles and other micromobility solutions is essential.**



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Thank You!