

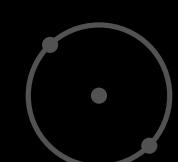
DESIGN x LLM SURVIVOR SERIES

CHATGPT vs COPILOT vs GEMINI

Testing the design performance of the big name LLMs in grueling 9-round design task matches.

Ai Dispatches Ex Ignoto 0.01

LLM SURVIVOR SERIES MATCH #1: SECONDARY RESEARCH



MATCH GUIDELINES

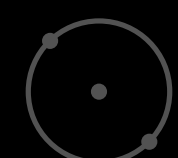
THE SETUP

Combatants are given the same exemplar prompt of a basic design task. The prompts & process are not intended to exactly reflect bespoke real-world scenarios or best-practice process. Don't @ me.

GROUND RULES

1. No GPTs or Custom Instructions allowed.*
2. Prodding ChatGPT to actually use internet browsing is allowed.
3. Prompts fed to combatants must be exactly the same.
4. No regeneration of responses is allowed.
5. No biting, scratching, or strikes below the belt allowed.

***GINORMOUS CAVEAT ALERT:** Creation of custom GPTs for Chat & Copilot could significantly increase their performance. Since Gemini requires APIs to build something akin to a GPT, the usage of GPTs was disallowed in order to handicap the scoring.



TALE OF THE TAPE



ChatGPT-4 Turbo

“The Macho Convo”

Fighting out of: Open.ai

Weighing in at: \$20 per month

Image analysis: yes

Image creation: yes

Power move:
“The Brain Storm”



Gemini Advanced

“The Versatile Darkhorse”

Fighting out of: Google Ai

Weighing in at: \$20 per month

Image analysis: yes

Image creation: yes

Power move:
“The Smack of All Trades”



Copilot Pro

“The Analytic Sidekick”

Fighting out of: GitHub/Microsoft

Weighing in at: \$20 per month

Image analysis: yes

Image creation: yes

Power move:
“The Mother Code”

SCORING

SCORING CRITERIA FOR REPOSSES

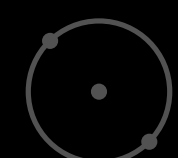
Rounds will have a winner for each of these categories*:

(I'm a designer. I don't do numbers.)

1. Relevance of responses.
2. Recency of cited sources.
3. Quality of cited sources.
4. Quantity of cited sources.
5. Overall quality of answers.

Each round has a winner. The combatant that wins the most rounds wins the match.

*Veracity of answers was not included in scoring due to lack of "false" answers from any of the combatants.

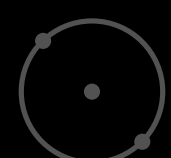


DESIGN x LLM SURVIVOR SERIES

1

Round

FACTORS TO CONSIDER



LLM Responses: Round #1 Factors to Consider

ROUND #1 PROMPT

“I am interested in designing products in the e-mobility market. What are some things that are unique about this market that I should consider?”

ChatGPT

Designing products in the e-mobility market presents a unique blend of challenges and opportunities. Here are some key factors you should consider:

- Sustainability and Eco-Friendliness:** A significant attraction to e-mobility is its potential for reducing carbon emissions and promoting a cleaner environment. Considerations for sustainability include the materials you choose, the energy efficiency of the product, and the lifecycle impacts of your design.
- Battery Technology and Management:** The heart of most e-mobility products is their battery. Innovations in battery technology, energy density, charging time, and longevity are crucial. Effective battery management systems (BMS) ensure safety, efficiency, and prolong the lifespan of the battery.
- Regulatory Compliance and Safety Standards:** The e-mobility market is heavily regulated. Safety standards, especially concerning batteries and their management systems, are stringent. Compliance with local and international regulations is not optional and requires careful attention to detail in design and manufacturing processes.
- Customization and Modular Design:** The ability to customize or upgrade parts of the e-mobility product can be a significant selling point. Modular designs allow users to replace or upgrade certain components without needing a whole new product, aligning with sustainability goals and providing a better long-term investment for the consumer.
- Market Trends and Consumer Preferences:** Understanding the target market is crucial. This includes not just geographical considerations but also being attuned to shifts in consumer behavior, preferences, and expectations regarding mobility solutions.
- Partnerships and Ecosystems:** The e-mobility market is not just about individual products but how these products fit into a larger ecosystem of transportation, energy, and smart cities. Forming strategic partnerships can be vital for success, offering integrated solutions that meet broader needs and preferences.
- Partnerships and Ecosystems:** The e-mobility market is not just about individual products but how these products fit into a larger ecosystem of transportation, energy, and smart cities. Forming strategic partnerships can be vital for success, offering integrated solutions that meet broader needs and preferences.
- Cost-Effectiveness:** While the initial cost of e-mobility products might be higher than their traditional counterparts, focusing on the total cost of ownership and long-term savings can be a compelling argument for consumers. Designing for cost-effectiveness without compromising quality or performance is a key challenge.

Addressing these considerations in your design and business strategy can position your products successfully in the competitive and rapidly evolving e-mobility market.



Copilot

Certainly! The **e-mobility market** is a fascinating and rapidly evolving sector. Here are some key aspects you should consider:

1. Diverse Ecosystem:

- The e-mobility market encompasses various components, including:
 - Electric Cars:** Battery-powered electric vehicles (BEVs) and plug-in hybrid electric vehicles (PHEVs).
 - Electric Bikes and Scooters:** These are gaining popularity in urban areas.
 - Electric Buses:** Public transportation is transitioning to electric options.
 - Charging Infrastructure:** The availability and accessibility of charging stations are critical.
 - Related Services:** Maintenance, battery swapping, and software updates.

2. Global Trends:

- Market Penetration:** EV sales have been steadily increasing globally, with Europe leading the way ¹.
- Technology Evolution:** EVs are becoming more sophisticated, with features like autonomous driving capabilities and improved battery technology ².

3. Consumer Perceptions:

- Understanding consumer preferences is crucial:
 - Perceived Benefits:** Highlight the advantages of EVs (e.g., environmental impact, lower operating cost).
 - Address Concerns:** Overcome perceived drawbacks (range anxiety, charging infrastructure).
 - Different Buyer Profiles:** BEV buyers differ significantly from traditional internal combustion engine (IC) vehicle buyers ¹.

4. Sales Readiness:

- OEMs (Original Equipment Manufacturers)** and dealers play a pivotal role:
 - Online Experience:** Create a seamless online buying process.
 - Store Experience:** Design modern, appealing showrooms.
 - Driving Experience:** Emphasize the joy of driving an EV.
 - Charging Experience:** Ensure convenient and efficient charging options.
 - Service Experience:** Provide top-notch after-sales service ¹.

5. Market Growth:

- Despite pandemic challenges, the e-mobility market exhibited strong growth in 2020 ³.
- As governments push for cleaner mobility, the e-mobility landscape will continue to evolve.

In summary, e-mobility presents exciting opportunities, but success hinges on understanding consumer needs, improving the buying experience, and staying abreast of technological advancements. 🚗🔋🌱

Learn more ¹ [mckinsey.com](#) ² [mckinsey.com](#) ³ [fortunebusinessinsights.com](#) ^{+2 more}



The e-mobility market is one of the most exciting and rapidly growing sectors worldwide. Here's a breakdown of the unique things to consider when designing products for this market, along with some ideas to spark your creativity:

Key Considerations

- Rapid Evolution:** Technology in batteries, charging, and electric powertrains is advancing incredibly fast. Your design must be future-proof, with the ability to adapt or upgrade as needed. Think modularity and flexibility.
- User-Centric Focus:** The success of e-mobility products hinges on seamless user experiences. Consider intuitive interfaces, ease of use, and how your product integrates into daily life (charging routines, maintenance, etc.)
- Environmental Impact:** Consumers are increasingly conscious of sustainability. Your materials, production processes, and end-of-life product management should prioritize a low environmental footprint.
- Regulations:** E-mobility has specific safety and performance regulations. Design with compliance in mind to avoid roadblocks (pun intended).
- Range Anxiety:** It's still a major barrier to adoption. Products that directly address range extension or make charging smarter and easier will have a strong market position.
- Infrastructure:** Charging infrastructure is expanding, but unevenly. Your product may need to function with limited infrastructure (e.g., in rural areas) or even contribute to it.
- Beyond Just Cars:** E-mobility encompasses e-bikes, scooters, commercial vehicles, even flying vehicles (eVTOLs)! Open your mind to broader applications.

Product Design Ideas

- Portable, high-capacity power banks:** For topping up vehicles away from fixed chargers.
- Ultra-fast & efficient home charging systems:** Reduce charging time significantly.
- Smart charging accessories:** Schedule charging during off-peak hours for cost savings, integrate with solar panels, etc.
- Augmented Reality (AR) maintenance aids:** Guides users through DIY repairs or shows real-time vehicle diagnostics.
- Innovative micromobility vehicles:** Think collapsible, lightweight, multimodal e-scooters or e-bikes.
- Vehicle-to-Grid (V2G) systems:** Allow EVs to act as power sources for homes or businesses during outages.
- Swappable battery packs:** Particularly for scooters/motorcycles – eliminating downtime with fast battery swaps.

Important Additional Tips

- Collaborate:** E-mobility is interdisciplinary; partner with experts in different fields: energy, software, automotive.
- Data Analytics:** Products that collect and intelligently analyze data on usage patterns, battery health, etc., will offer great value to users and businesses alike.
- Be bold:** Embrace new form factors and design philosophies unique to electric transportation!

Let me know if you'd like to brainstorm product ideas for a specific segment within e-mobility. It's a thrilling design space!

ROUND #1: FACTORS TO CONSIDER

ROUND #1 PROMPT:

“I am interested in designing products in the e-mobility market. What are some things that are unique about this market that I should consider?”

ROUND #1 UNOFFICIAL SCORECARD

Relevance: ChatGPT

Source Recency: Copilot

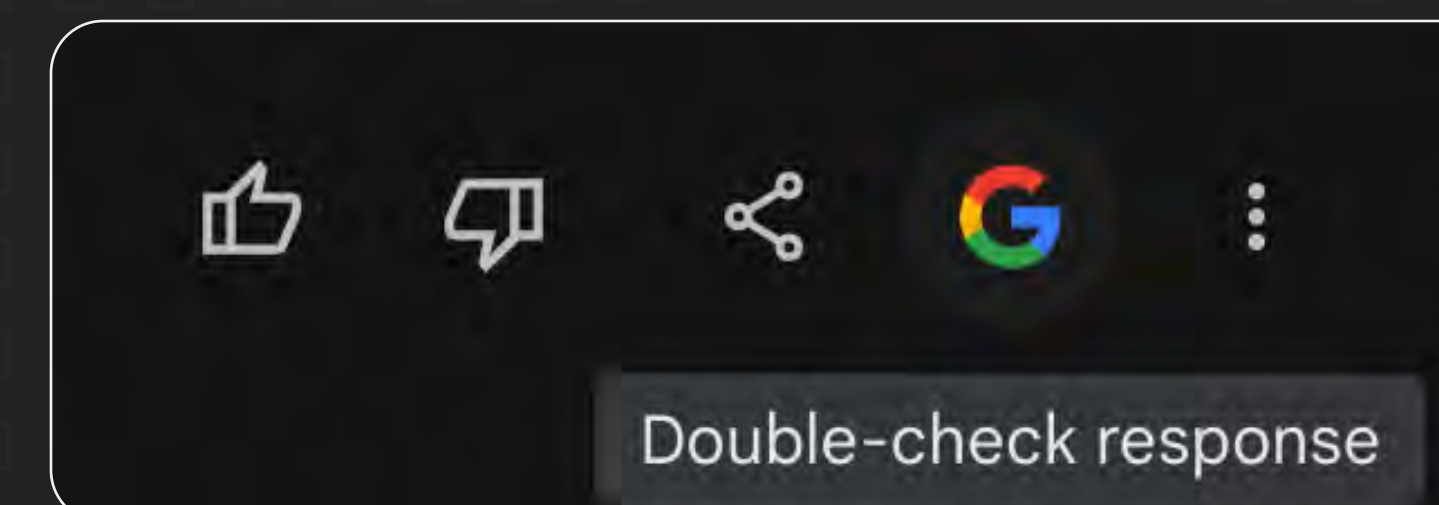
Source Quality: Copilot

Source Quantity: Gemini

Overall quality: Gemini

Round Highlight: Gemini’s “Double-check response”

Round Lowlight: The “Double-check response” simply being a feature that shows sources when it sounds like something wicked cool



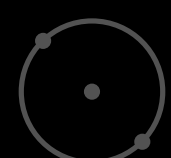
Round #1 Winner: Gemini

DESIGN x LLM SURVIVOR SERIES

2

Round

INITIAL TRENDS 1x



LLM Responses: Round #2 Initial Trends 1x

ROUND #2 PROMPT

“Provide some trends in the e-mobility industry.”

ChatGPT

Exploring the latest insights, the e-mobility industry is witnessing several transformative trends as we move into 2024, underpinned by technological advancements, regulatory changes, and shifting consumer behaviors. Here's an augmented and vetted overview based on current data and analysis:

- Charging Infrastructure Expansion:** As EV adoption continues to rise, there is a significant push towards expanding and innovating the charging infrastructure. Innovations include lamp post charge points, smart electric sockets for virtual charging stations, and ultra-fast DC charging solutions, alongside developments in electric road systems (ERS) and solar-powered EVs with photovoltaic (PV) cells [1].
- Electric Mobility as a Service (eMaaS):** The shift towards subscription-based or pay-as-you-use models for transport services is growing. eMaaS combines various transportation modes through digital platforms, making mobility more sustainable and efficient. This approach is further supported by the expansion of electric air taxis using electric vertical take-off and landing (eVTOL) technology [2].
- Artificial Intelligence (AI) in E-Mobility:** AI is revolutionizing the e-mobility sector by enhancing process automation, optimizing charging station usage, and supporting the development of autonomous electric vehicles. AI-driven battery management systems are critical for monitoring battery health and ensuring efficient energy use [3]. Additionally, AI optimizes traffic management, reducing congestion significantly in some cities [4].
- Vehicle-to-Everything (V2X) Communication:** This trend highlights the potential of EVs to interact with the grid and other infrastructures, enabling energy transfer back to the grid or buildings, enhancing grid performance and energy efficiency. Technologies under the V2X umbrella, like vehicle-to-grid (V2G), are gaining traction for their ability to balance supply and demand in energy markets [5].
- Micromobility:** The rise of micromobility solutions, such as e-bikes and e-scooters, addresses the demand for affordable, convenient, and sustainable transportation for short urban trips. This trend reflects a broader societal shift towards shared mobility services, projected to see significant consumer spending growth by 2030 [6].
- Smart Infrastructure and Big Data:** Advancements in smart infrastructure and the application of big data are making mobility safer and more efficient. Digital mapping, real-time traffic insights, and innovative road features like glow-in-the-dark markings are part of this trend. Moreover, leveraging big data for traffic management and road safety underscores a move towards data-driven mobility solutions [7].
- 3D Printing in Automotive Manufacturing:** 3D printing is poised to revolutionize automotive manufacturing by enabling rapid prototyping, customization, and the production of lighter and more efficient vehicle components. This technology supports sustainability goals by reducing waste and energy use during the manufacturing process [8].
- Slowing EV Uptake Amid Macroeconomic Challenges:** Despite the growth, there's an anticipated slowdown in EV sales growth as the industry faces challenges in transitioning from early adopters to the mass market. Factors contributing to this include higher interest rates affecting consumer financing capabilities and the high cost of EVs compared to internal combustion engine vehicles. Car manufacturers may need to adjust pricing strategies to cater more effectively to the mass market [9].

These trends collectively signal a dynamic period of growth and transformation in the e-mobility industry, driven by innovation, consumer demand for sustainability, and the integration of new technologies. As these developments unfold, they are likely to redefine the landscape of urban mobility and transportation at large.

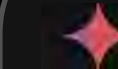
Copilot

Certainly! The e-mobility industry is experiencing significant transformations driven by **regulation, consumer behavior, and technology**. Let's delve into some key trends:

- Regulation:**
 - Governments and cities worldwide are implementing regulations and incentives to accelerate the shift toward sustainable mobility.
 - The European Union's "Fit for 55" program aims to align climate, energy, land use, transport, and taxation policies to reduce net greenhouse gas emissions by at least 55% by 2030.
 - The Biden administration has set a 50% electric vehicle (EV) target for 2030.
 - Many cities are investing in bicycle networks and converting car lanes into bicycle lanes to reduce private vehicle use and congestion.
- Consumer Behavior:**
 - More people are accepting alternative and sustainable mobility modes.
 - Inner city trips using shared bicycles and e-scooters have risen significantly.
 - Consumers are becoming more open to shared mobility options, including ride-pooling services.
- Technology:**
 - Industry players are accelerating automotive technology innovation.
 - Concepts such as electric, connected, autonomous, and shared mobility are gaining momentum.
 - Innovations include mobility-as-a-service, advanced traffic management, freight-sharing solutions, and micromobility options.

In addition to these trends, there are other exciting developments, such as the growth of the used EV market, the rise of Chinese EVs, advanced connectivity in cars, and the shift to LFP batteries [1][2]. The e-mobility industry is on a dynamic trajectory, and we can expect further advancements in the coming years! 🚗🔋

Learn more: [1 mckinsey.com](#) [2 statzon.com](#) [3 01.net.it](#) [4 evmagazine.com](#) [5 mckinsey.com](#)



Absolutely! Here's a breakdown of the most important trends driving the e-mobility industry forward:

Key Trends

- Explosive Growth:** Electric vehicles sales are booming globally. China leads the way, but Europe and North America are experiencing surges in demand for EVs. This growth aligns with government incentives and a global push for sustainability.
- Charging Infrastructure Expansion:** As EV adoption grows, so does the expansion of charging networks. Governments and private companies are investing heavily in fast-charging stations for both public and home use, making owning an EV ever more convenient.
- Battery Advancements:** The heart of the EV revolution lies in batteries. We see significant innovations in:
 - Increased Energy Density:** This means longer ranges on a single charge.
 - Faster Charging Speeds:** Reducing charging times is crucial.
 - Lower Costs:** Making EVs more price-competitive with traditional vehicles.
 - Sustainability:** Focus on recycled materials and ethical sourcing.
- Vehicle-to-Grid (V2G) Technology:** This allows EVs to act as energy storage for the grid, stabilizing power flows and potentially providing backup power during outages. Vehicle batteries can even become revenue generators as part of demand response programmes.
- Autonomous Driving Synergies:** While a separate field, self-driving technology has a strong connection to e-mobility. Electric vehicles are often better suited for the sensing and computation requirements of autonomy.
- New Business Models:** Concepts like ride-sharing, battery swapping, and Mobility-as-a-Service (MaaS) are changing how we think about transportation, further propelled by e-mobility options.
- Micromobility Boom:** Electric bikes, e-scooters, and other small-scale electric vehicles are becoming incredibly popular, especially in urban areas, reducing congestion and offering short-distance transportation solutions.

Factors Driving These Trends

- Government Regulations & Incentives:** Emissions standards, subsidies, and tax breaks are powerful incentives for consumers and manufacturers to adopt EVs.
- Technological Innovation:** Constant improvement in battery technology, electric motors, and power electronics make EVs more efficient and affordable.
- Environmental Concerns:** As climate concerns grow, consumers look for sustainable transport options. EVs offer a significant reduction in emissions and pollution.
- Cost Competitiveness:** Falling battery prices are making EVs more affordable upfront and throughout their ownership cycle.

Let me know if you'd like to dive deeper into a particular trend, or if you'd like more information on how these trends will impact businesses or consumers

ROUND #2: INITIAL TRENDS 1x

ROUND #2 PROMPT:

“Provide some trends in the e-mobility industry.”

ROUND #2 UNOFFICIAL SCORECARD

Relevance: ChatGPT

Source Recency: Copilot

Source Quality: Copilot

Source Quantity: Gemini

Overall quality: ChatGPT

Round Highlight: Copilot citing a source published day of prompt

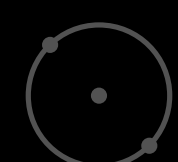
Round Lowlight: Copilot failing to follow up its hot prompt source with a quality response

Business Wire

2024 Emerging Trends and Startups Revolutionizing the Mobility Industry – ResearchAndMarkets.com

di Business Wire 28 Marzo 2024

Round #2 Winner: Copilot

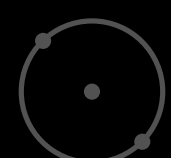


DESIGN x LLM SURVIVOR SERIES

3

Round

INITIAL TRENDS 2x



LLM Responses: Round #3 Initial Trends 2x

ROUND #3 PROMPT

“Tell me more about trends in the micro e-mobility market.”

ChatGPT

The micro e-mobility market is experiencing significant growth and transformation, driven by evolving urban landscapes, technological advancements, and changing consumer behaviors. Here's an overview of key trends shaping the micro e-mobility industry:

- Expansion and Technological Advancements:** The micro e-mobility market, valued at USD 66.4 billion in 2022, is expected to grow at a CAGR of over 13% from 2023 to 2032. This growth is largely fueled by technological advancements in North America, including IoT connectivity, GPS navigation, and improved battery management systems. These innovations enhance user convenience, safety, and operational efficiency, making micro-mobility solutions such as e-scooters and e-bikes increasingly attractive for urban transportation [7].
- Sustainability and Electric Mobility:** The trend towards electric mobility within the micro e-mobility sector signifies a shift to more sustainable and eco-friendly transportation solutions. Electric micro-mobility options, such as e-scooters and e-bikes, are favored for their minimal environmental impact, offering zero emissions at the point of use and aligning with global efforts to combat climate change [7].
- Last-Mile Connectivity:** Addressing the challenge of last-mile connectivity, micro e-mobility solutions provide efficient, eco-friendly, and cost-effective means for commuters to cover short distances. This trend enhances urban mobility, reduces congestion, and encourages the use of sustainable transportation methods for daily commutes [7].
- Docked Sharing:** The docked sharing type segment currently leads the market, attributed to the reduced risk of theft and vandalism and users' preferences for systems that are easily unlockable and returnable to specific locations. Docked services, especially bikes, remain popular in North America and are expected to dominate the market [7].
- Safety Concerns and Vandalism:** Safety concerns, including accidents and injuries involving e-scooters and e-bikes, present challenges for the micro e-mobility market. Additionally, vandalism and theft have become significant problems in several cities, affecting revenue and operational sustainability for micro-mobility service providers [7] [7].
- Regional Insights:** The Asia Pacific region accounted for a major share of the micro e-mobility market in 2022 and is anticipated to continue its dominance. Rapid urbanization, favorable government policies, and cultural acceptance of two-wheeled transportation contribute to the growth of micro-mobility in this region [7].

These trends underline the dynamic nature of the micro e-mobility industry, highlighting the potential for continued innovation, growth, and challenges in the coming years. As cities and consumers increasingly turn to micro e-mobility solutions for their transportation needs, addressing safety, sustainability, and accessibility will be key to the sector's long-term success.

🗨️ 📄 🔄

Copilot

Certainly! The **micro e-mobility** market, which includes lightweight vehicles like bicycles, e-scooters, and mopeds, has been influenced by several trends. Let's explore them:

1. Short-Term Trends:

- **Valuation Shifts:** The global lockdown significantly impacted **micromobility-service providers**. Valuations of some companies dropped dramatically, with one experiencing a **79% decrease**. Another provider suspended operations in multiple cities and laid off staff. Industry consolidation has also accelerated.
- **Consumer Behavior Changes:** Due to COVID-19 measures, local travel preferences shifted. For instance, average trip distances for e-scooters increased by 26%, with some cities like Detroit seeing up to a **60% rise** in ride distances [1].

2. Medium-Term Trends:

- **Recovery and the Next Normal:** As the pandemic subsides, the micromobility industry aims for recovery. The next normal will likely involve a mix of remote work, longer trips, and evolving consumer preferences.
- **Bicycle Lanes and Infrastructure:** Cities are investing in more **bicycle lanes** to accommodate the growing demand for micromobility options.
- **Shift in Consumer Use Cases:** Some cities are witnessing changes in how consumers use micromobility services. Longer trips and different use patterns are emerging [1].

3. Long-Term Trends:

- **Market Modeling Impact:** The pandemic has altered our 2030 market modeling. While the industry faced setbacks, it remains a dynamic sector with potential for growth.
- **Urbanization and Cost Factors:** The micro-mobility market is projected to grow at a **CAGR of around 22%** from 2023 to 2028. Factors driving this growth include rapid urbanization, high vehicle ownership costs, traffic congestion, and the demand for **emission-free and cost-effective transportation** [2].

In summary, the micro e-mobility market is navigating challenges while adapting to changing consumer behavior and regulatory landscapes. Its future lies in sustainable, convenient, and efficient mobility solutions! 🚲🛴🛵

Learn more | 1. mckinsey.com | 2. w.markinteladvisors.com | 3. pbcc.com | 4. gettyimages.com

🗨️ 📄 🔄



Absolutely! Here's a deeper look at the trends shaping the micro e-mobility market:

Key Trends

- **Booming Popularity in Urban Areas:** E-scooters, e-bikes, and other micro e-mobility options are exploding in popularity in cities. They ease congestion, offer affordable short-distance transport, and are fun to ride!
- **Focus on the "First and Last Mile":** Micro e-mobility is solving the problem of connecting commuters between their homes/workplaces and public transport hubs – the first and last stretches of any journey. This integration with larger transport networks is a key growth driver.
- **Dockless vs. Docked Systems:** Sharing platforms are changing how we access micro-mobility.
 - Dockless offers flexibility but can be a public nuisance in some areas.
 - Docked systems provide order but require specific stations for pickup and drop-off.
- **Increased Regulation:** As usage spikes, cities are scrambling to regulate micro e-mobility. Rules emerge to address speed limits, sidewalk use, age restrictions, and parking, all impacting the sector.
- **Safety Innovations:** Improved brakes, lighting, and helmet integrations are crucial for wider adoption as safety concerns remain prevalent.
- **Multi-modal Integration:** Apps connecting e-scooters, e-bikes, public transport and even ride-hailing options are creating seamless urban mobility experiences.
- **Subscription Models:** Instead of outright ownership, subscription services offering unlimited rides for a fixed fee are gaining traction, lowering the entry barrier.

Why These Trends Matter

- **Sustainability:** Micro e-mobility offers a low-carbon alternative to cars for short distances, improving urban air quality and supporting green cities.
- **Affordability:** Compared to owning a car, these options are much cheaper, attracting budget-conscious commuters and younger generations.
- **Health & Wellness:** E-bikes, in particular, encourage active transportation, contributing to healthier lifestyles.

Challenges to Overcome

- **Infrastructure:** Many cities lack dedicated lanes and safe parking areas for e-scooters and e-bikes.
- **Public Perception:** Negative perceptions about safety and sidewalk clutter persist in some places.
- **Long-term Profitability:** The business models of many shared micro e-mobility companies remain unproven in terms of sustained profitability.

ROUND #3: INITIAL TRENDS 2x

ROUND #3 PROMPT:

“Tell me more about trends in the micro e-mobility market.”

ROUND #3 UNOFFICIAL SCORECARD

Relevance: ChatGPT

Source Recency: Copilot

Source Quality: Copilot

Source Quantity: Gemini

Overall quality: ChatGPT

Round Highlight: ChatGPT catapulting off the ropes with a detailed, highly relevant response & sources

Round Lowlight: Copilot trying to spice up its response with some pink scooters

ChatGPT
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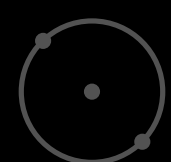
Round #3 Winner: ChatGPT

DESIGN x LLM SURVIVOR SERIES

4

Round

INITIAL TRENDS 3x



LLM Responses: Round #4 Initial Trends 3x

ROUND #4 PROMPT

“Provide a list of trends in the micro e-mobility safety product market, including hardware peripherals, features on e-mobility vehicles, and safety gear.”

ChatGPT

The micro e-mobility safety product market is evolving rapidly, influenced by technological advancements and increasing safety concerns. Here are some notable trends in this domain:

- IoT Connectivity and GPS Navigation:** Enhancements in IoT connectivity and GPS navigation are making micro e-mobility devices, such as e-scooters and e-bikes, safer and more user-friendly. These features help in tracking the location of the vehicles, which is vital for theft prevention and recovery. Moreover, they allow for better fleet management by micro-mobility service providers, ensuring that the vehicles are properly maintained and safe for use [1].
- Advanced Battery Management Systems:** The introduction of advanced battery management systems in micro e-mobility devices is another key trend. These systems ensure the safety and longevity of batteries, reducing the risk of malfunctions that could lead to accidents. They also improve the operational efficiency of the vehicles by optimizing battery usage and charging cycles [1].
- Safety Concerns and Measures:** The increasing number of accidents and injuries involving e-scooters and e-bikes has led to a heightened focus on safety measures. This includes the development and mandatory use of safety gear, such as smart helmets equipped with features like fall detection, turn signals, and integrated lights to improve visibility. Moreover, there's a push for the enforcement of safety measures such as helmet use and the implementation of dedicated lanes for micro e-mobility devices to separate them from pedestrian and vehicular traffic, reducing the risk of collisions [1].
- E-mobility Vehicle Features for Enhanced Safety:** E-mobility vehicles are being equipped with features aimed at enhancing rider safety. These include attachable lights and reflective materials to increase visibility, especially during night-time or in low-light conditions. Some e-bikes and e-scooters now come with built-in lights that are automatically activated in the dark [1].
- Docked Sharing Systems:** To mitigate theft and vandalism, there's a growing trend towards docked sharing systems. These systems require users to pick up and return the micro-mobility devices to specific docking stations, which helps in ensuring the vehicles are parked in safe locations and reduces the likelihood of them being stolen or damaged [1].
- Demand for Sustainable and Convenient Transportation:** The micro e-mobility market is expanding due to the rising consumer demand for convenient, on-demand transportation solutions that are also environmentally friendly. This trend is supported by the increasing popularity of electric micro-mobility options, which offer an efficient and affordable means of navigating congested city streets and addressing the last-mile challenge [1].
- COVID-19 Pandemic Impact:** The pandemic has positively impacted the micro e-mobility market by encouraging a shift towards individualized and socially distanced transportation options. E-scooters and e-bikes have become attractive for short trips, reducing reliance on cars and lowering emissions. The adoption of contactless payment and app-based services has been accelerated, further streamlining the use of micro-mobility solutions [1].

These trends indicate a significant shift towards integrating advanced technologies into micro e-mobility safety products and vehicles, emphasizing the importance of safety, efficiency, and sustainability in urban transportation.

🔍 📄 🗑️

Copilot

Certainly! Let's explore some trends in the **micro e-mobility safety product market**:

- Attachable Lights and Visibility Enhancements:**
 - LED lights and reflective accessories** are gaining popularity. These attachable lights enhance visibility during low-light conditions, making e-scooters, e-bikes, and other micromobility vehicles more noticeable to pedestrians and other road users.
 - Smart lighting systems** that adjust brightness based on ambient conditions are becoming common.
- Integrated Safety Features on E-Bikes and E-Scooters:**
 - Anti-lock braking systems (ABS):** These prevent wheel lockup during sudden braking, improving stability and safety.
 - Traction control:** Helps maintain grip on slippery surfaces.
 - Electronic stability control (ESC):** Enhances stability during cornering.
 - Collision detection and avoidance:** Sensors detect obstacles and alert riders or automatically adjust speed.
 - Speed limiters:** Some e-bikes and e-scooters have speed restrictions to prevent excessive speeds.
- Smart Helmets and Wearable Tech:**
 - Smart helmets** equipped with built-in lights, turn signals, and communication systems are gaining traction.
 - Heads-up displays (HUDs)** integrated into helmets provide real-time information without distracting the rider.
 - Impact sensors:** Helmets with sensors detect impacts and notify emergency contacts.
 - Wearable airbags:** These inflate upon impact, providing additional protection for the head and neck.
- Safety Education and Training:**
 - Safety campaigns:** Companies are investing in educational campaigns to raise awareness about safe riding practices.
 - In-app safety tips:** Micromobility apps provide safety guidelines to users before and during rides.
- Secure Parking Solutions:**
 - Docking stations:** Secure parking areas for e-scooters and e-bikes reduce clutter and prevent tripping hazards.
 - Geofencing:** Virtual boundaries restrict parking to designated areas, ensuring safety and orderliness.
- Maintenance and Inspection Tools:**
 - Regular maintenance reminders:** Apps remind users to check brakes, tires, and lights periodically.
 - QR code-based inspections:** Riders can scan QR codes on vehicles to report issues or request maintenance.
- Data-Driven Safety Improvements:**
 - Telematics:** Collecting data on rider behavior, road conditions, and accidents helps companies identify safety gaps.
 - Predictive analytics:** Using historical data to predict potential safety risks and take preventive measures.

Remember that safety is paramount in the micro e-mobility industry, and continuous innovation in safety products ensures a safer and more enjoyable riding experience! 🚲🛡️

Learn more 1 [mobilityforesights.com](#) 2 [pbsc.com](#) 3 [mckinsey.com](#) 4 [markteladvisors.com](#)

🔍 📄 🗑️

Absolutely! Here's a look at the trends in the micro e-mobility safety product market:

Hardware Peripherals

- High-Visibility Lights:** Powerful LED lights with multiple flash patterns have become standard, both front and rear. Some smart lights even adjust brightness automatically to ambient light conditions.



High-visibility bike lights

- Turn Signals:** Integrated or attachable turn signals are gaining ground, improving rider visibility and communication of intended maneuvers.



Bike turn signals

- Audible Alerts:** Loud bike horns or bells are a necessity for alerting pedestrians and other vehicles of your presence.
- 360-Degree Visibility:** Reflective materials and strips covering all sides of the e-mobility vehicle are increasingly important.

Features on E-mobility Vehicles

- Integrated Braking Lights:** Brightly illuminating when brakes are applied is a crucial safety feature, especially on e-scooters.
- Stability & Tire Technology:** Improved traction control, wider tires, and puncture-resistant tires reduce the risk of falls and accidents.
- Speed Limitation:** Especially for shared e-scooters, software-based speed limits in certain zones or for novice riders promote safety.
- GPS Tracking and Geofencing:** This technology enables anti-theft measures and enforcement of speed restrictions in specific areas.

Safety Gear

- Smart Helmets:** Helmets featuring integrated lights, turn signals, fall detection technology, and even SOS functions in case of an accident are emerging on the market.



Smart helmets

- High-Visibility Gear:** Beyond helmets, reflective vests, jackets, and backpacks are becoming more stylish and functional, crucial for riding in low-light conditions.
- Haptic Feedback Wearables:** Devices that provide vibrations or other tactile warnings to the user regarding potential hazards on the road are an area of innovation.

Important Notes

- Regulation:** It's vital to check local regulations on required safety hardware and gear, as they vary significantly between locations.
- Innovation:** The market for micro e-mobility safety products is still rapidly evolving. Expect to see even more advanced features and technologies in the near future.

ROUND #4: INITIAL TRENDS 3x

ROUND #4 PROMPT:

“Provide a list of trends in the micro e-mobility safety product market, including hardware peripherals, features on e-mobility vehicles, and safety gear.”

ROUND #4 UNOFFICIAL SCORECARD

Relevance: ChatGPT

Source Recency: Copilot

Source Quality: Gemini

Source Quantity: Gemini

Overall quality: ChatGPT

Round Highlight: Gemini brings out the big guns with cool relevant imagery in its response

Round Lowlight: Copilot citing a McKinsey source. Again.



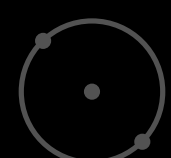
Round #4 Winner: Gemini

DESIGN x LLM SURVIVOR SERIES

5

Round

COMPETITIVE LANDSCAPE



LLM Responses: Round #5 Competitive Landscape

ROUND #5 PROMPT

“Provide a list of companies that provide services or products in the micro e-mobility market.”

ChatGPT

Lumos specializes in creating helmets with integrated LED lights, turn signals, and automatic brake lights for enhanced visibility and safety. Their products are designed for urban cyclists and e-scooter riders, promoting safety through innovation.

Thousand offers stylish yet functional helmets aimed at urban cyclists, skateboarders, and e-scooter users. Their helmets feature a secret PopLock for securing the helmet to your bike or scooter, emphasizing convenience and theft prevention alongside safety.

Knox is known for its range of protective gear, including gloves and body armor, designed for motorcyclists and bicyclists seeking extra protection without compromising on comfort or mobility.

G-Form specializes in impact-absorbing technology for sports equipment, including pads and guards for cyclists and e-scooter riders. Their products are lightweight, flexible, and designed to offer protection without hindering movement.

🔊 🗨️ 🔄

Copilot

Certainly! Here are some companies that play a significant role in the **micro e-mobility safety gear** market:

- Streetlogic (US):** Streetlogic focuses on safety-focused **Advanced Driver Assistance Systems (ADAS)** for e-bikes. Their system aims to enhance safety by providing real-time alerts and assistance to riders ¹.
- Terranet (Sweden):** Terranet is working to produce computer vision-based systems that can help e-bike riders in the consumer market ride more safely by detecting potential hazards ¹.
- UL (United States and Canada):** UL 2272 is a consensus-based bi-national standard for electrical systems for personal e-mobility devices. It aims to reduce the risk of dangerous fires in these products. UL 2849 also addresses safety requirements for battery-powered products ².

These companies are actively contributing to the safety of micro e-mobility users through innovative gear and standards! 🙌🔧

Learn more [1](#) [techcrunch.com](#) | [2](#) [ul.com](#) | [3](#) [highways.dot.gov](#) | [4](#) [transportation.gov](#)

👍 🗨️ 📄 📌 🗣️



Absolutely! Here's a list of companies that specialize in making micro e-mobility safety gear:

- **Lumos:** Renowned for their smart helmets with integrated lighting, turn signals, brake lights, and even fall detection in some models. (<https://lumoshelmet.co/>)
- **Coros:** Their smart helmets offer features like bone conduction audio, fall detection, and emergency SOS capabilities. (<https://www.coros.com/>)
- **Torch Apparel:** Prioritizes style while incorporating integrated lighting for a sleek, urban look. (<https://torchapparel.com/>)
- **Thousand:** A strong focus on safety and design with a range of fashionable, well-protected helmets. (<https://www.explorethousand.com/>)
- **Smith Optics:** Well-established helmet brand with excellent protection, some models incorporate MIPS technology for added safety. (<https://www.smithoptics.com/>)
- **Bern:** Offers a wide variety of helmets for different e-mobility needs, with styles ranging from sporty to casual. (<https://www.bernhelmets.com/>)

Visibility Gear

- **Proviz:** Specializes in high-visibility vests, jackets, backpacks, etc., with highly-reflective materials for optimal visibility. (<https://www.provizsports.com/>)
- **Noxgear:** Offers a product called the Tracer360, a wearable illuminated vest for 360-degree visibility. (<https://www.noxgear.com/>)
- **Halo Belt Company:** Their Halo Belt offers adjustable LED illumination around the rider's waist. (<https://www.halobelt.com/>)

Additional Safety Gear

- **Demon United:** Provides knee pads, elbow pads, and other protective gear essential for e-scooter and e-skateboard riders. (<https://www.demonunited.com/>)
- **187 Killer Pads:** A well-regarded brand for protective gear catering to a variety of action sports, including protection suitable for micromobility. (<https://187killerpads.com/>)

Important Notes:

- **Regulation:** Always check local regulations about what safety gear is legally required when using micro e-mobility vehicles.
- **Innovation:** This market is evolving rapidly. Look out for smaller companies and start-ups introducing innovative new safety products.

Let me know if you'd like a more focused list on a specific type of safety gear (like helmets, visibility vests, or protective pads)!

👍 🗨️ 📄 📌 🗣️ 🌐 📄

ROUND #5: COMPETITIVE LANDSCAPE

ROUND #5 PROMPT:

“Provide a list of companies that provide services or products in the micro e-mobility market.”

ROUND #5 UNOFFICIAL SCORECARD

Relevance: Gemini

Source Recency: Gemini

Source Quality: Gemini

Source Quantity: Gemini

Overall quality: Gemini

Round Highlight: EPIC total domination by Gemini as it collects a 5 - 0 round

Round Lowlight: ChatGPT basically sitting out the round

- ✦ Absolutely! Here's a list of companies that specialize in making micro e-mobility safety gear:
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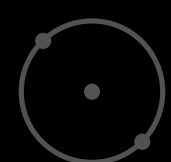
Round #5 Winner: Gemini

DESIGN x LLM SURVIVOR SERIES

6

Round

MARKET SEGMENTATION



LLM Responses: Round #6 Market Segmentation

ROUND #6 PROMPT

Provide a market segmentation analysis of customers for the micro e-mobility safety gear market based upon the previous information within this chat.

ChatGPT

The micro e-mobility safety gear market can be segmented based on user types, including urban commuters, recreational riders, and sports enthusiasts. Urban commuters prioritize functional and convenient safety gear like helmets with built-in lights for visibility. Recreational riders may focus on comfort and style, opting for aesthetically pleasing helmets that offer protection. Sports enthusiasts, such as electric skateboarders or off-road e-bike riders, likely seek high-performance gear with advanced protection features like impact-absorbing pads and body armor. Each segment values safety but has distinct preferences influenced by their primary activities and needs.



Copilot

Certainly! Let's analyze the market segmentation for **micro e-mobility safety gear** based on the information provided earlier:



1. Age Group:

- Customers can be segmented based on their age:
 - **15-34:** Younger riders who are likely to adopt e-scooters, e-bikes, and other micromobility options.
 - **35-54:** Middle-aged riders who may use e-mobility vehicles for commuting or leisure.
 - **55 and above:** Older riders who appreciate the convenience and eco-friendliness of micromobility.

2. Battery Type:

- Customers' preferences may vary based on the type of battery used in e-mobility vehicles:
 - **Lithium-ion:** Popular for its energy density and lightweight design.
 - **Lithium-ion Polymer:** Similar to lithium-ion but with a flexible form factor.
 - **Lead Acid:** Less common due to weight and environmental concerns.

3. Usage:

- Segmentation by usage patterns:
 - **Mountain:** Safety gear preferences may differ for off-road or rugged terrain riding.
 - **Trekking:** Long-distance riders may prioritize comfort and durability.
 - **City/Urban:** Urban commuters may focus on lightweight and compact safety gear.
 - **Cargo:** Riders using e-bikes for cargo transport may need specialized safety accessories.
 - **Others:** Customized safety gear for unique use cases.

4. Mode of Riding:

- Different safety gear may be suitable for various riding modes:
 - **Pedal Assist:** E-bike riders who need safety gear compatible with pedaling.
 - **Throttle:** E-scooter users who rely on throttle acceleration.

Remember that understanding customer segments is crucial for tailoring safety gear offerings to meet diverse needs in the micro e-mobility market! 🚀🛡️

Learn more [1 grandviewresearch.com](#) [2 skyquestt.com](#) [3 alliedmarketresearch.com](#) [+3 more](#)



Absolutely! Here's a market segmentation analysis of the micro e-mobility safety gear market, drawing insights from our previous discussion:

Demographic Segmentation

- **Age:**
 - **Young Urban Professionals (20-35):** Value convenience, style, and tech. Smart helmets and stylish high-visibility gear.
 - **Teens & College Students:** Price-sensitive, attracted to basic helmets and lights.
 - **Commuters (35-55):** Prioritize safety and reliability. Seek durable helmets, high-powered lights, and reflective gear.
- **Location:**
 - **Dense Urban Environments:** High need for all safety gear due to traffic volume and congestion.
 - **Suburban Commuters:** Safety-conscious, with focus on visibility gear and helmets with integrated features for connecting to existing transport networks.

Psychographic Segmentation

- **The Tech-Savvy Early Adopter:** Enthusiasts excited about new gadgets. Smart helmets, innovative visibility solutions, and cutting-edge protective gear appeal to them.
- **The Safety-First Rider:** Prioritizes protection above all. High-quality helmets, robust protection gear, and trusted brands are essential.
- **The Design-Conscious Commuter:** Looks for safety gear that aligns with their personal style. Well-designed helmets and sleek-looking visibility gear.
- **The Budget-Focused Practicalist:** Seeks affordability and essential functionality. Basic helmets, simple lights, and practical visibility gear are their choices.

Behavioral Segmentation

- **Frequency of Use:**
 - **Daily Commuter:** Invests in top-quality gear for regular use and dependability.
 - **Occasional Rider:** May opt for more basic, affordable safety gear.
- **Type of Micro e-mobility:**
 - **E-bike Riders:** Focus on reliable helmets, visibility gear for variable speeds.
 - **E-scooter Riders:** May prioritize lightweight helmets, knee/elbow protection due to the higher risk of falls.

Additional Considerations

- **Local Regulations:** Requirements for helmets, lights, etc., will heavily influence segments in each given market.
- **Marketing Channels:**
 - **Tech-focused riders:** Online platforms, gadget reviews, tech influencers.
 - **Safety-focused Riders:** Partnerships with bike/e-mobility shops, safety organizations.
 - **Design-conscious:** Style publications, social media influencers.

Important: This segmentation is a starting point! Companies should conduct thorough market research to fine-tune their targeting and tailor their messaging to resonate most effectively with each segment.

ROUND #6: MARKET SEGMENTATION

ROUND #6 PROMPT:

Provide a market segmentation analysis of customers for the micro e-mobility safety gear market based upon the previous information within this chat.

ROUND #6 UNOFFICIAL SCORECARD

Relevance: Gemini

Source Recency: Gemini

Source Quality: Gemini

Source Quantity: Gemini

Overall quality: Gemini

Round Highlight: Gemini taking Chat & Copilot to school with a textbook best-practice market segmentation

Round Lowlight: Is ChatGPT throwing in the towel or playing possum?

Demographic Segmentation

• Age:

- **Young Urban Professionals (20-35):** Value convenience, style, and tech. Smart helmets and stylish high-visibility gear.
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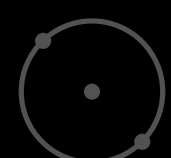
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Round #6 Winner: Gemini

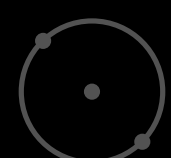


DESIGN x LLM SURVIVOR SERIES

7

Round

USAGE SCENARIOS



LLM Responses: Round #7 Usage Scenarios

ROUND #7 PROMPT

“Provide a list of usage scenarios for e-mobility safety gear.”

ChatGPT

E-mobility safety gear is crucial for protecting riders across various forms of electric mobility devices, such as electric scooters, skateboards, bicycles, and hoverboards. The use of safety gear can significantly reduce the risk of injuries. Here's a list of usage scenarios where e-mobility safety gear is particularly important:

- Urban Commuting:** For individuals using e-scooters, e-bikes, or other electric mobility devices as a mode of transportation in urban areas. Safety gear such as helmets, knee pads, and reflective vests can protect commuters from potential accidents amidst traffic.
- Recreational Use:** When riding e-mobility devices for leisure in parks, neighborhoods, or recreational trails. Helmets, elbow pads, and gloves can prevent scrapes, bruises, and more serious injuries in case of falls or collisions.
- Off-Road Adventures:** Using electric all-terrain vehicles (ATVs), e-mountain bikes, or off-road hoverboards requires additional protective gear, including full-face helmets, body armor, and possibly eye protection to navigate through challenging terrains safely.
- Professional Sports and Competitions:** In professional settings where electric skateboards, bikes, or scooters are used for racing or stunts, comprehensive safety gear is mandatory. This includes helmets, mouthguards, protective suits, and sometimes specialized gear like neck braces.
- Delivery Services:** Workers using electric bikes or scooters for parcel or food delivery in urban environments need helmets, reflective clothing, and possibly rain gear to ensure safety and visibility in all conditions.
- Educational Settings:** In schools or workshops where students and participants learn to ride e-mobility devices, providing helmets, knee pads, and elbow pads is essential to ensure a safe learning environment.
- Tourism and Guided Tours:** For tourists exploring cities or attractions on electric scooters or bikes, providing and enforcing the use of helmets and reflective vests is crucial to protect inexperienced riders from potential hazards.
- Night Riding:** Use of reflective gear, lights, and helmets is particularly important for visibility and safety when riding e-mobility devices after dark in any setting.
- First-Time Users:** Beginners are at higher risk of accidents due to inexperience. Offering comprehensive safety gear, including helmets, wrist guards, and knee pads, is key during initial rides.
- Public Sharing Systems:** For public e-mobility sharing systems, ensuring the availability of helmets and encouraging their use can help protect a wide range of users, from casual riders to daily commuters.

In all these scenarios, the primary goal is to minimize the risk of injury, ensuring that riders can enjoy the benefits of electric mobility safely and responsibly.

🗨️ 📄 🔄

Copilot

Certainly! Here are some **usage scenarios** for e-mobility safety gear:

- Daily Commuting:**
 - Helmet:** Riders wear helmets during their daily e-scooter or e-bike commutes to protect their heads in case of accidents.
 - Reflective Clothing:** High-visibility jackets or vests enhance visibility during morning and evening rides.
- Long-Distance E-Bike Tours:**
 - Padded Gloves:** Cyclists wear padded gloves to reduce hand fatigue during long rides.
 - Comfortable Helmets:** Helmets with good ventilation and adjustable straps ensure comfort during extended journeys.
- Night Riding:**
 - LED Lights and Reflectors:** Attachable lights and reflective gear help riders stay visible in low-light conditions.
 - Smart Helmets with Lights:** Helmets with built-in lights improve visibility and safety at night.
- Urban Deliveries:**
 - Knee and Elbow Pads:** Couriers using e-scooters or cargo e-bikes wear protective pads to prevent injuries.
 - Sturdy Shoes:** Closed-toe shoes with good grip provide stability during frequent stops.
- Shared E-Scooter Services:**
 - Disposable Helmet Liners:** Riders can use disposable liners inside shared helmets for hygiene.
 - Compact Foldable Helmets:** Foldable helmets are convenient for users of shared e-scooters.
- Off-Road E-Biking:**
 - Full-Face Helmets:** Off-road e-bikers wear full-face helmets for maximum protection.
 - Body Armor:** Protective vests and knee guards shield riders during rugged terrain rides.
- E-Bike Commuting in Rainy Weather:**
 - Waterproof Gear:** Rain jackets, pants, and shoe covers keep riders dry.
 - Anti-Fog Helmet Visors:** Helmets with anti-fog visors maintain visibility during rain.
- Safety Gear for E-Skateboards and Hoverboards:**
 - Wrist Guards:** Riders of e-skateboards and hoverboards wear wrist guards to prevent injuries during falls.
 - Elbow and Knee Pads:** Protective pads reduce impact during sudden stops or falls.

Remember, choosing the right safety gear based on the specific e-mobility activity ensures a safer and more enjoyable ride! 🛡️🚲🛴

Learn more 1 eebus.org 2 aushsi.org.au 3 ulise.org

🗨️ 📄 🔄



Absolutely! Here's a breakdown of usage scenarios for e-mobility safety gear, focusing on both common and less-considered situations:

Core e-Mobility Safety Gear

- Helmets:** Indispensable for many e-mobility users.
 - Daily commutes:** E-bikes, e-scooters, and similar vehicles used for getting around town.
 - Recreational riding:** Longer distance biking, exploring trails, or enjoying speed on e-scooters.
 - Delivery services:** Riders navigating urban traffic.
- High-visibility clothing/accessories:** Critical for all visibility conditions.
 - Nighttime riding:** Reflective strips, vests, and even integrated LED lighting on clothing.
 - Busy urban areas:** Brightly colored gear to stand out against traffic.
 - Adverse weather:** Daytime use in rain or fog for better visibility.
- Protective pads:** Less universal, but essential for specific scenarios.
 - Skateboarding (electric or regular):** Knee, elbow, and wrist guards
 - More aggressive riding styles:** Heavier-duty pads may be necessary.

Specialized/Situational Safety Gear

- Full-face helmets:**
 - High-speed e-bikes or motorcycles:** Offer greater protection at higher speeds
 - Off-road riding:** Added protection against terrain hazards.
- Airbag vests/jackets:** Deployed in crashes.
 - Motorcycle riders:** Protection for high-impact crashes.
 - Vulnerable users:** Older e-scooter riders concerned about fall injuries
- Smart helmets:** Integrated features go beyond basic protection.
 - Rearview cameras:** Enhance rider awareness.
 - Turn signals:** Clearer communication with traffic.
 - Accident detection:** Can automatically alert emergency contacts
- Vehicle-based safety tech:** Less about traditional "gear," but essential.
 - Braking lights, turn signals:** For e-bikes, e-scooters, etc.
 - Blind-spot monitoring:** Future tech for electric motorcycles for instance.

Important Notes

- Regulations vary by region. Make sure the gear you consider meets local safety standards.
- "Safety" extends to weather protection. Rain gear, gloves, etc., may not prevent crashes but contribute to safer riding experiences.
- As e-mobility evolves, expect innovative new safety gear concepts – keep an eye out for emerging technologies!

ROUND #7: USAGE SCENARIOS

ROUND #7 PROMPT:

“Provide a list of usage scenarios for e-mobility safety gear.”

ROUND #7 UNOFFICIAL SCORECARD

Relevance: ChatGPT

Source Recency: Copilot

Source Quality: Gemini

Source Quantity: Gemini

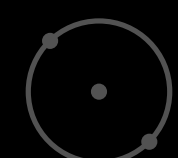
Overall quality: ChatGPT

Round Highlight: ChatGPT trying to pick itself up off the mat with a high quality response

Round Lowlight: ChatGPT cancelling out its excellent answer by refusing to name its sources

- Urban Commuting:** For individuals using e-scooters, e-bikes, or other electric mobility devices as a mode of transportation in urban areas. Safety gear such as helmets, knee pads, and reflective vests can protect commuters from potential accidents amidst traffic.
- Recreational Use:** When riding e-mobility devices for leisure in parks, neighborhoods, or recreational trails. Helmets, elbow pads, and gloves can prevent scrapes, bruises, and more serious injuries in case of falls or collisions.
- Off-Road Adventures:** Using electric all-terrain vehicles (ATVs), e-mountain bikes, or off-road hoverboards requires additional protective gear, including full-face helmets, body armor, and possibly eye protection to navigate through challenging terrains safely.

Round #7 Winner: Gemini

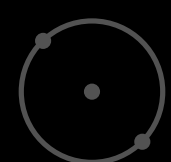


DESIGN x LLM SURVIVOR SERIES

8

Round

OPPORTUNITIES



LLM Responses: Round #8 Opportunities

ROUND #8 PROMPT

“Provide a list of hypothetical market opportunities where design could improve the user experience and satisfaction with micro mobility safety gear based upon the previous information in this chat.”

ChatGPT

Design improvements in micro-mobility safety gear could include the integration of smart technology in helmets for better communication with other road users, development of lightweight yet highly protective materials to enhance comfort without compromising safety, and the incorporation of customizable aesthetics to appeal to a broader user base, including those looking for style alongside functionality. Additionally, expanding the range of gear to include weather-resistant, breathable fabrics could improve the riding experience in various environmental conditions, encouraging more consistent use of safety gear.

🔊 📄 🔄

Copilot

Certainly! Here are some **hypothetical market opportunities** where design improvements could enhance user experience and satisfaction with micro mobility safety gear:

1. Intuitive and Ergonomic Design:

- **Helmet Comfort:** Design lightweight, well-ventilated helmets with adjustable straps and padding for a comfortable fit during long rides.
- **Glove Fit:** Create gloves with touchscreen-compatible fingertips for easy smartphone use without removing them.

2. Integrated Safety Features:

- **Smart Helmets:** Embed turn signals, brake lights, and heads-up displays (HUDs) directly into helmets for seamless communication and navigation.
- **Reflective Gear:** Integrate reflective materials into clothing and accessories for enhanced visibility at night.

3. Modularity and Customization:

- **Modular Safety Gear:** Develop gear that adapts to different weather conditions (e.g., removable rain covers for helmets).
- **Customizable Aesthetics:** Allow users to personalize safety gear colors and patterns.

4. User-Friendly Maintenance:

- **Easy Cleaning:** Design gear with removable and washable components (e.g., helmet liners, glove inserts).
- **Quick Buckle Systems:** Create fast-release buckles for helmets and gloves to simplify putting them on and taking them off.

5. Smart Connectivity:

- **App Integration:** Helmets with built-in sensors could sync with mobile apps to track riding data, provide safety alerts, and offer emergency assistance.
- **GPS Tracking:** Develop gear with GPS tracking capabilities to locate lost or stolen items.

6. Sustainable Materials:

- **Eco-Friendly Fabrics:** Use recycled or sustainable materials for safety gear to align with environmentally conscious consumers.
- **Biodegradable Components:** Explore biodegradable helmet foam liners and glove materials.

7. User Education and Training:

- **Instructional Labels:** Include clear instructions on how to properly wear and maintain safety gear.
- **Safety Workshops:** Organize workshops or online tutorials to educate users on safe riding practices.

8. Collaboration with Micromobility Providers:

- **Integration with Apps:** Partner with e-scooter and e-bike sharing platforms to offer safety gear rentals or discounts.
- **Incentive Programs:** Reward users who consistently wear safety gear with ride credits or other perks.

Remember, these opportunities are hypothetical, but addressing them could lead to safer and more enjoyable micro mobility experiences! 🚀🛡️

Learn more [1 - mobilityforesights.com](#) [2 - micromobility.io](#) [3 - businesswire.com](#) [+4 more](#)



Absolutely! Here's a list of hypothetical market opportunities ready for design innovation to improve micro-mobility safety gear user experience:

Opportunity 1: Seamlessly Integrated Technology

- **Problem:** Many smart helmets feel bulky or have add-on components that look ungainly or impede the fit.
- **Design Solution:** Streamline the integration of lights, turn signals, and sensors into the helmet design for a sleek aesthetic and optimized wearability. Think invisible tech, embedded lighting, and less clunky form factors.

Opportunity 2: Enhanced Night Riding Comfort

- **Problem:** Traditional lights blind oncoming traffic or riders due to fixed beam angles.
- **Design Solution:** Develop intelligent lighting systems that dynamically adjust brightness and beam angle based on speed, surrounding light conditions, and even traffic density. This would optimize visibility for the rider without blinding others.

Opportunity 3: Customization and Personal Expression

- **Problem:** Safety gear often feels generic and sacrifices style for function.
- **Design Solution:** Explore modular systems for helmets and visibility gear. Offer swappable accent elements, customizable light colors, and a wider range of designs to cater to individual tastes. Safety and personalization can coexist.

Opportunity 4: Comfort-Driven Protection

- **Problem:** Knee/elbow pads can be bulky, hot, and restrict movement.
- **Design Solution:** Utilize new materials (like breathable impact-resistant foams) to create lightweight, form-fitting protective gear. Prioritize flexibility and ventilation for extended wear comfort. Think of sleek, almost invisible protection.

Opportunity 5: Beyond the Rider

- **Problem:** E-scooters, especially at night, are barely visible to car drivers.
- **Design Solution:** Create easily attachable, robust lighting systems specifically for e-scooters to address front, side, and rear visibility. Collaborate with e-scooter companies to integrate this safety feature seamlessly.

Additional Notes

- **User-Centric Design Process:** Involve micro-mobility enthusiasts in the design process through interviews, wear-testing, and feedback sessions, ensuring the solutions address the real pain points.
- **Sustainability:** Focus on eco-friendly materials, reparability, and recyclability to attract environmentally conscious buyers.

Let me know if you'd like me to brainstorm specific design features or executions for any of these opportunities!

ROUND #8: OPPORTUNITIES

ROUND #8 PROMPT:

“Provide a list of hypothetical market opportunities where design could improve the user experience and satisfaction with micro mobility safety gear based upon the previous information in this chat.”

ROUND #8 UNOFFICIAL SCORECARD

Relevance: Gemini

Source Recency: Copilot

Source Quality: Copilot

Source Quantity: Copilot

Overall quality: Gemini

Round Highlight: Gemini flying off the turnbuckle with a - dare I say it? - imaginative answer!

Round Lowlight: ChatGPT for apparently deciding to take its toys and go home

Opportunity 3: Customization and Personal Expression

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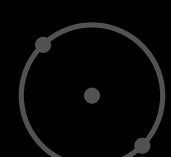
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Round #8 Winner: Gemini

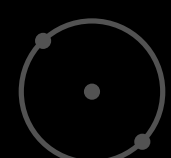


DESIGN x LLM SURVIVOR SERIES

9

Round

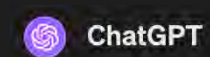
SYNTHESIS



LLM Responses: Round #9 Synthesis

ROUND #9 PROMPT

“Create a detailed summary of <Rounds 1 - 8 answers>. At the end of your summary, create a list of questions that would be helpful for further exploration.”



ChatGPT

The document titled "LLM Survivor Series Match 1 ChatGPT" covers extensive information regarding the e-mobility market, including design considerations, industry trends, market growth, and safety gear developments. Here's a detailed summary:

Design Considerations for E-Mobility Products

- **Sustainability and Eco-Friendliness:** Focus on reducing carbon emissions and choosing sustainable materials.
- **Battery Technology:** Innovations in battery management systems (BMS) are crucial for safety and efficiency.
- **Regulatory Compliance:** Adherence to safety standards and regulations is essential.
- **User Experience (UX):** Integration of digital features enhances product appeal.
- **Infrastructure Compatibility:** Design should consider the available charging infrastructure.
- **Innovation in Materials:** Lightweight materials improve efficiency; innovative processes can reduce costs.
- **Customization and Modular Design:** Allows for user personalization and sustainability.
- **Market Trends:** Understanding consumer preferences is vital for success.
- **Partnerships:** Strategic collaborations can provide integrated solutions.
- **Cost-Effectiveness:** Designing for affordability without compromising quality is challenging.

E-Mobility Industry Trends

- **Charging Infrastructure Expansion:** Innovations include smart charging solutions and solar-powered EVs.
- **Electric Mobility as a Service (eMaaS):** Subscription-based models are becoming popular.
- **AI in E-Mobility:** AI enhances automation and supports autonomous vehicle development.
- **Vehicle-to-Everything (V2X) Communication:** Enables energy transfer between EVs and the grid.
- **Micromobility:** E-bikes and e-scooters offer sustainable transportation for short distances.
- **Smart Infrastructure and Big Data:** Improve safety and efficiency in mobility.
- **3D Printing:** Revolutionizes manufacturing with rapid prototyping and customization.
- **Economic Challenges:** Factors like high interest rates may slow EV adoption.

Micro E-Mobility Market Growth and Safety Gear

- **Market Growth:** The market is expected to grow significantly, driven by demand for sustainable transportation solutions.
- **Technological Advancements:** IoT connectivity, GPS navigation, and advanced battery management systems improve user experience and safety.
- **Safety Concerns:** Increasing focus on safety measures due to accidents involving e-scooters and e-bikes.
- **Regional Insights:** The Asia Pacific region dominates the market due to rapid urbanization and favorable policies.

Safety Gear Developments

- **IoT and GPS:** Enhance tracking and fleet management.
- **Advanced Battery Management:** Improves safety and efficiency.
- **Safety Gear Enhancements:** Smart helmets with integrated lights and turn signals are becoming more common.
- **Docked Sharing Systems:** Reduce theft and vandalism.

Questions for Further Exploration

1. How can the e-mobility market address the challenge of making advanced safety features standard while keeping products affordable?
2. What role will emerging technologies like blockchain play in enhancing security and transparency in e-mobility services?
3. How are global supply chain issues impacting the availability and cost of materials for e-mobility products?
4. In what ways can governments further incentivize the adoption of e-mobility solutions to accelerate the shift towards sustainable transportation?
5. What are the potential impacts of the slow EV adoption rate on global efforts to reduce carbon emissions, and how can these challenges be mitigated?
6. How can e-mobility solutions be tailored to meet the needs of different geographical markets, especially those with underdeveloped infrastructure?
7. What strategies can be employed to educate the public about the benefits of e-mobility and overcome resistance to change?

This comprehensive overview sheds light on the critical aspects of the e-mobility market, including design, trends, safety, and challenges, offering a foundation for further research and discussion.



Copilot

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The document provides a comprehensive overview of the e-mobility market, focusing on various aspects such as the diverse ecosystem, global trends, consumer perceptions, sales readiness, and market growth. It highlights the importance of understanding consumer needs, improving the buying experience, and staying abreast of technological advancements.

The document also delves into the micro e-mobility market, discussing short-term, medium-term, and long-term trends. It emphasizes the market's potential for growth, driven by factors such as rapid urbanization, high vehicle ownership costs, traffic congestion, and the demand for emission-free and cost-effective transportation.

Furthermore, the document explores trends in the micro e-mobility safety product market, including attachable lights, integrated safety features on e-bikes and e-scooters, smart helmets, safety education and training, secure parking solutions, maintenance and inspection tools, and data-driven safety improvements.

The document also provides a list of companies that play a significant role in the micro e-mobility safety gear market, including Streetlogic, Terranet, and UL. It discusses market segmentation for micro e-mobility safety gear based on age group, battery type, usage, and mode of riding.

Finally, the document presents usage scenarios for e-mobility safety gear, hypothetical market opportunities where design improvements could enhance user experience and satisfaction with micro mobility safety gear, and a list of companies that make micro e-mobility safety gear.

Here are some questions for further exploration:

1. What are the key challenges faced by the e-mobility market, and how can they be addressed?
2. How can consumer perceptions towards e-mobility be improved?
3. What are the emerging technologies in the e-mobility market?
4. How can safety in the micro e-mobility market be further enhanced?
5. What are the future trends in the micro e-mobility safety product market?
6. How can the design of micro e-mobility safety gear be improved to enhance user experience and satisfaction?
7. What are the potential market opportunities for new entrants in the micro e-mobility safety gear market?
8. How can companies in the micro e-mobility safety gear market differentiate themselves from their competitors?
9. What are the regulatory challenges in the e-mobility market, and how can they be navigated?
10. How can sales readiness be improved in the e-mobility market?



Here's a detailed summary of the information provided, along with some questions to guide further exploration:

Summary

The e-mobility market is booming with new technologies and innovative solutions addressing transportation needs. When designing for this sector, it's crucial to consider:

- **Rapid Evolution:** Design for future-proofing, allowing products to adapt to advancements in battery tech, charging, and powertrains.
- **User Experience:** Prioritize seamless interactions, intuitive interfaces, and how products fit into the user's daily routines (charging, maintenance, etc.).
- **Environmental Sustainability:** Consumers value low-impact materials, processes, and product lifecycles.
- **Regulations:** Being compliant with safety and performance standards from the outset is key.
- **Range Anxiety:** Directly address this barrier with products that extend range or streamline charging experiences.
- **Infrastructure:** Consider solutions that function in areas with limited infrastructure, or contribute to its expansion.
- **Broader Applications:** Design for diverse applications – cars, e-bikes, scooters, commercial vehicles, even flying cars!

Product Design Ideas

- Portable, high-capacity power banks for emergency top-ups.
- Ultra-fast and efficient home charging systems.
- Smart charging accessories that optimize costs and integrate with renewable energy sources.
- AR maintenance aids for DIY repairs and diagnostics.
- Innovative, lightweight micromobility vehicles.
- Vehicle-to-Grid (V2G) systems for energy exchange.
- Swappable battery packs for scooters and motorcycles.

Important Notes

- **Collaboration is Key:** Partner with experts in energy, software, and automotive fields.
- **Data's Power:** Design products that can collect and analyze usage patterns and vehicle health.
- **Think Boldly:** Embrace new design philosophies specific to electric mobility.

Specific Market Trends

- **Explosive Growth:** EV growth is global, with incentives and sustainability goals as drivers.
- **Charging Expansion:** Infrastructure investments are making EV ownership more convenient.
- **Battery Advancements:** Longer ranges, faster charging, lower costs, and sustainable materials are major areas of innovation.
- **Vehicle-to-Grid:** EVs can act as grid energy storage.
- **Autonomous Connections:** Synergy exists between autonomous tech and electric vehicles.
- **New Business Models:** Concepts like ride-sharing, battery swapping, and Mobility-as-a-Service are transforming the industry.
- **Micromobility Boom:** E-bikes, e-scooters, etc., reduce urban congestion and offer short-distance solutions.

Micromobility Safety Market

- **Product focus:** Innovative lights, turn signals, audible alerts, and smart helmets are on the rise.
- **Market Segmentation:** Consider age, location, tech-savviness, design-consciousness, and budget when targeting customers.

Questions for Further Exploration:

- **User Experience:** How can design contribute to even more seamless rider experiences on e-mobility vehicles?
- **Data Utilization:** What valuable insights can be gleaned from data collected by e-mobility products, benefiting both businesses and users?
- **Interdisciplinary Collaboration:** What potential gains lie in design partnerships with experts in unexpected fields?
- **Infrastructure Gaps:** How can product design address the challenges and opportunities of current charging infrastructure limitations?
- **Micromobility Integration:** How can we design safer e-scooters/bikes for integration with existing city infrastructure and public transport?

ROUND #9: SYNTHESIS

ROUND #9 PROMPT:

“Create a detailed summary of <Rounds 1 - 8 answers>. At the end of your summary, create a list of questions that would be helpful for further exploration.”

ROUND #9 UNOFFICIAL SCORECARD

Relevance: ChatGPT

Source Recency: -

Source Quality: -

Source Quantity: -

Overall quality: ChatGPT

Round Highlight: ChatGPT with a solid, rich, & relevant synthesis

Round Lowlight: Copilot for turning a synthesis task into multiple paragraphs with a heavier cognitive load

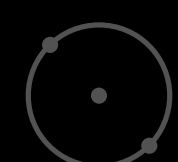
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Round #9 Winner: ChatGPT



MATCH #1 SCORECARD

MATCH #1: SECONDARY RESEARCH OFFICIAL SCORECARD

Round #1 Factors to Consider: Gemini

Round #2 Initial Trends 1x: Copilot

Round #3 Initial Trends 2x: ChatGPT

Round #4 Initial Trends 3x: Gemini

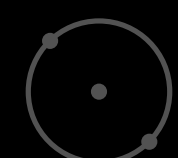
Round #5 Competitive Landscape: Gemini

Round #6 Market Segmentation: Gemini

Round #7 Usage Scenarios: Gemini

Round #8 Opportunities: Gemini

Round #9 Synthesis: ChatGPT



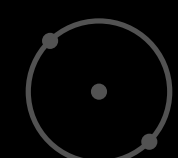
LLM SURVIVOR SERIES :: SECONDARY RESEARCH

MATCH #1: SECONDARY RESEARCH

Winner by unanimous decision:



Gemini Advanced



Ai FILES EX IGNOTO

Ai Dispatches Ex Ignoto 0.01

LLM SURVIVOR SERIES MATCH #1: SECONDARY RESEARCH

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