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Integrating Urban Electric Mobility Solutions in the Context of the Paris Agreement, the Sustainable Development Goals, and the New Urban Agenda

Electrifying feeder bajajs to the BRT Feasibility Assessment Report

Dar es Salaam, 21.05.22



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Feasibility Assessment report



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Final Report

Feasibility assessment to electrify feeder three-wheeled vehicles in Dar es Salaam

Part I: Data collection with ICE feeder bajajs

- Organisational, financial & spatial patterns
- Typical mileage
- Vehicle types
- Passenger volumes
- Parking patterns
- Transfer

Part II: Environment assessment for e-bajajs

- Regulatory environment
- Fiscal environment
- Market environment

⇒ Recommendations for the e-bajaj pilot



Six feeder waiting points surveyed



Feeder corridors for the pilot

Multi-criteria analysis to select six high-priority corridors and waiting points to conduct the surveys:

- existing bajaj demand
- connectivity to BRT
- road condition
- terrain

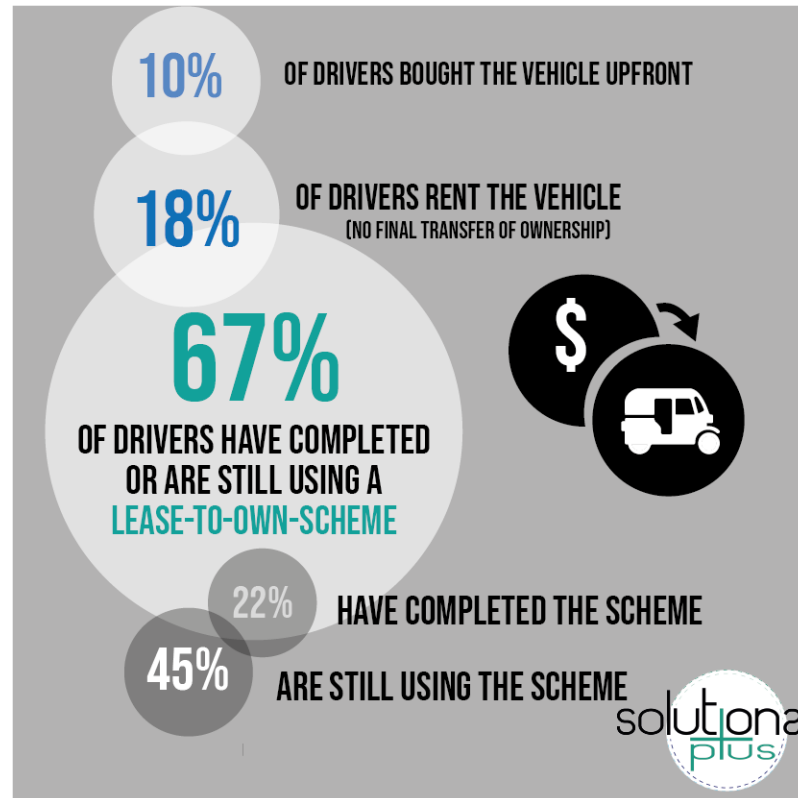
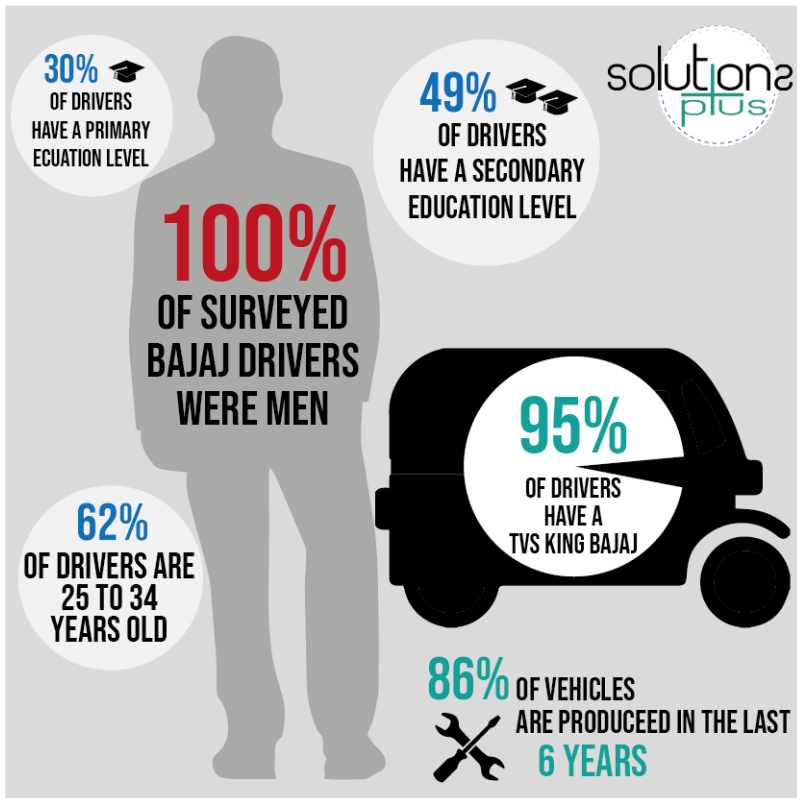
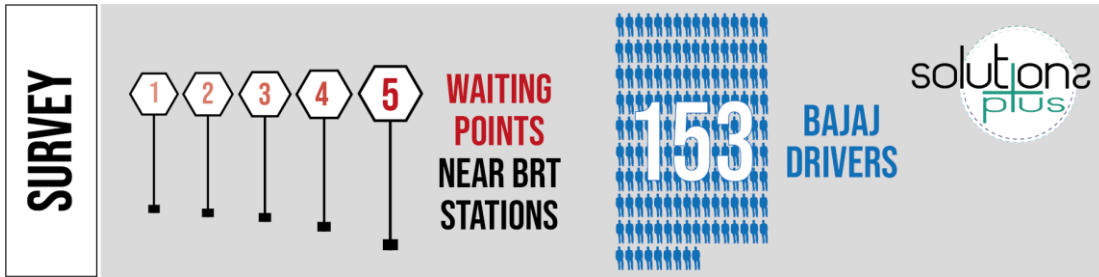
Methods



1. Survey of bajaj drivers
2. Focus groups
3. GPS tracking of ICE bajajs
4. Boarding and alighting survey
5. Frequency occupancy survey
6. Transfer survey
7. Field observations

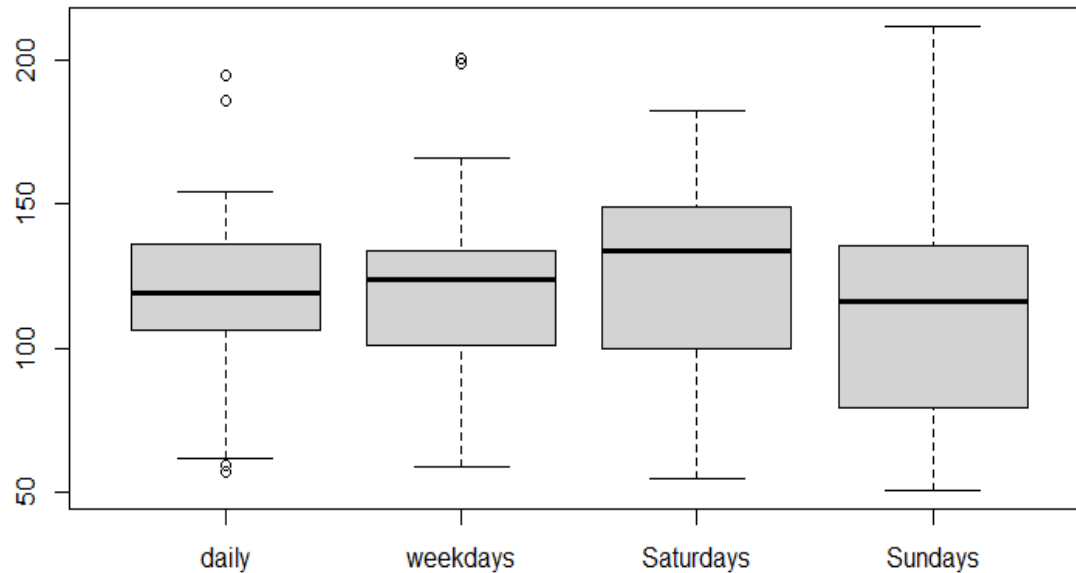


Collecting essential information about drivers



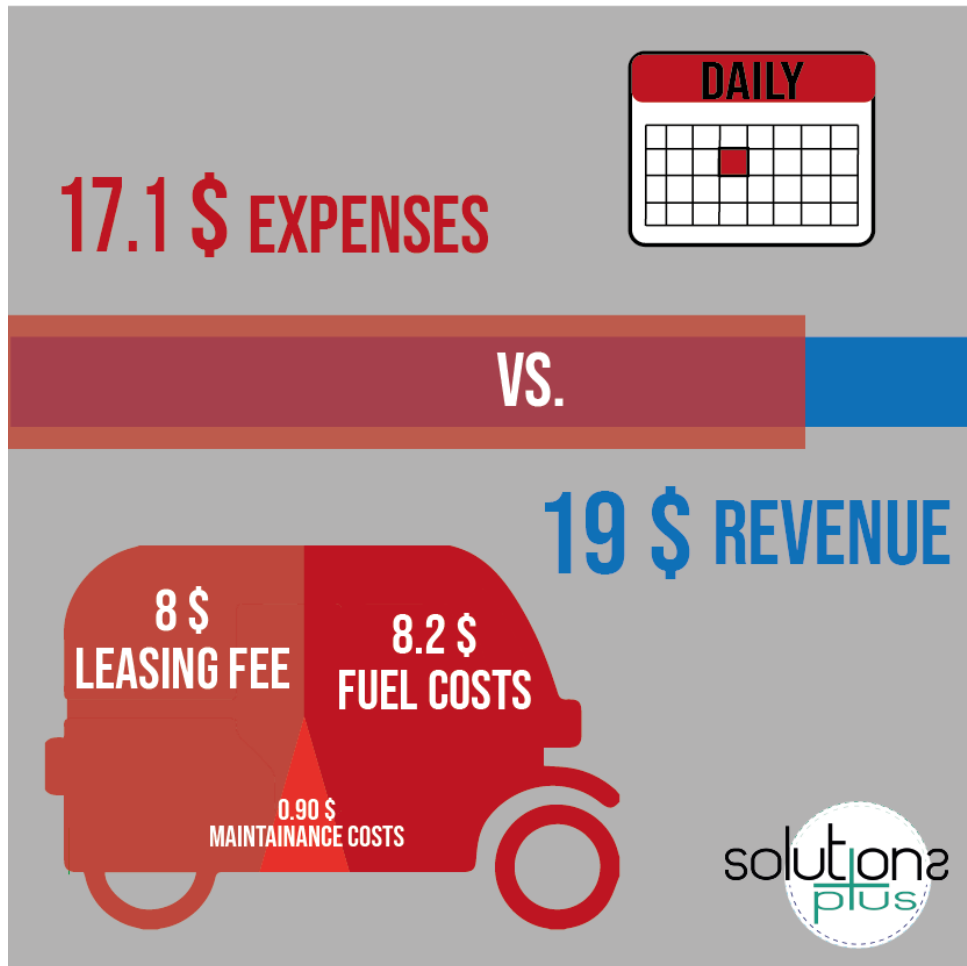


- Integrating the views and preferences of bajaj drivers and their associations is essential to ensure a just and efficient transition.
- In particular, the pilot needs to consider **three key needs** identified by the drivers:
 - sufficient range
 - vehicle robustness
 - availability of spare parts.
- Drivers and their waiting point associations should be tightly involved in the transition, as done throughout the surveys and focus groups.

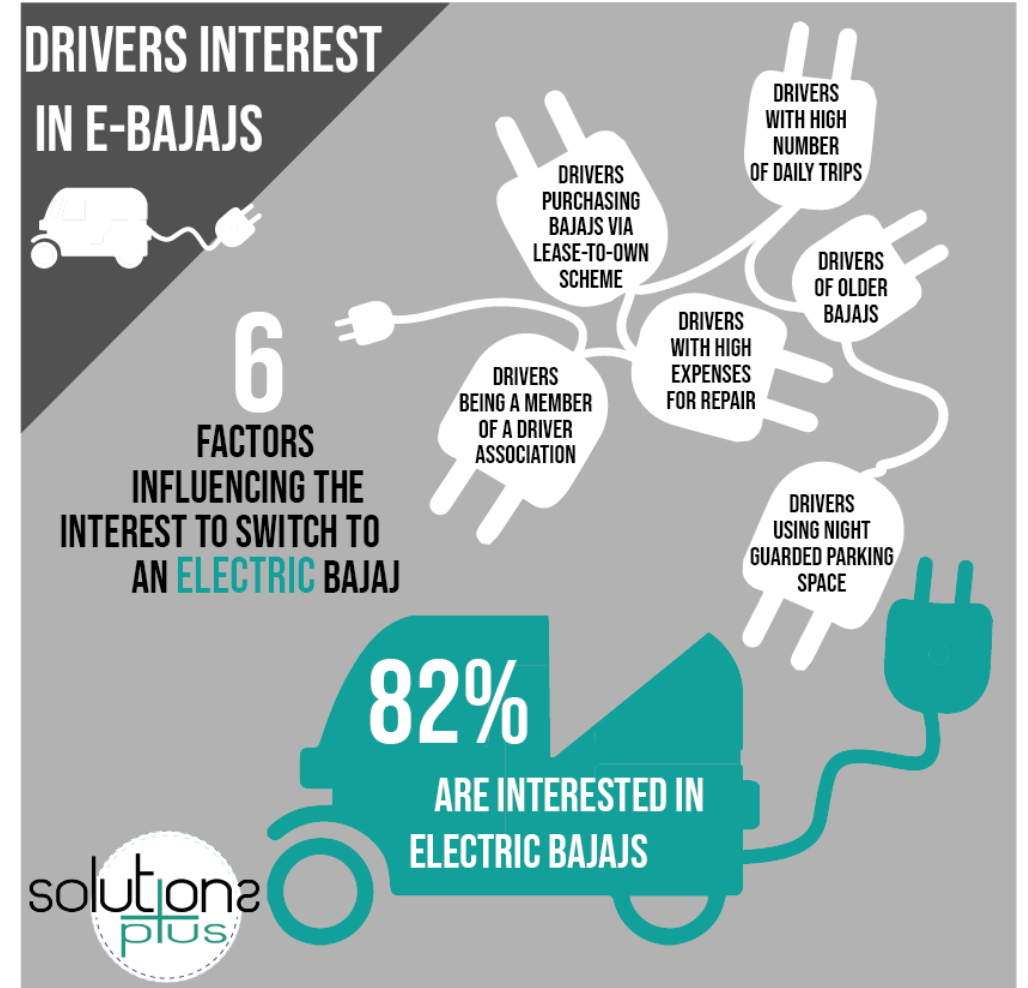


- Surveyed drivers want electric bajajs to allow them to operate with a **similar mileage** compared to ICE vehicles.
- The **average daily mileage** with ICE bajajs in the areas studied is found to be 120 km.
- The e-bajaj specifications and the charging strategy should be designed to allow a similar daily mileage while limiting disruption of operational patterns and costs.
- **Two options:** battery charging overnight completed by limited top-up during the day, or battery swapping.

Learnings: identified opportunities

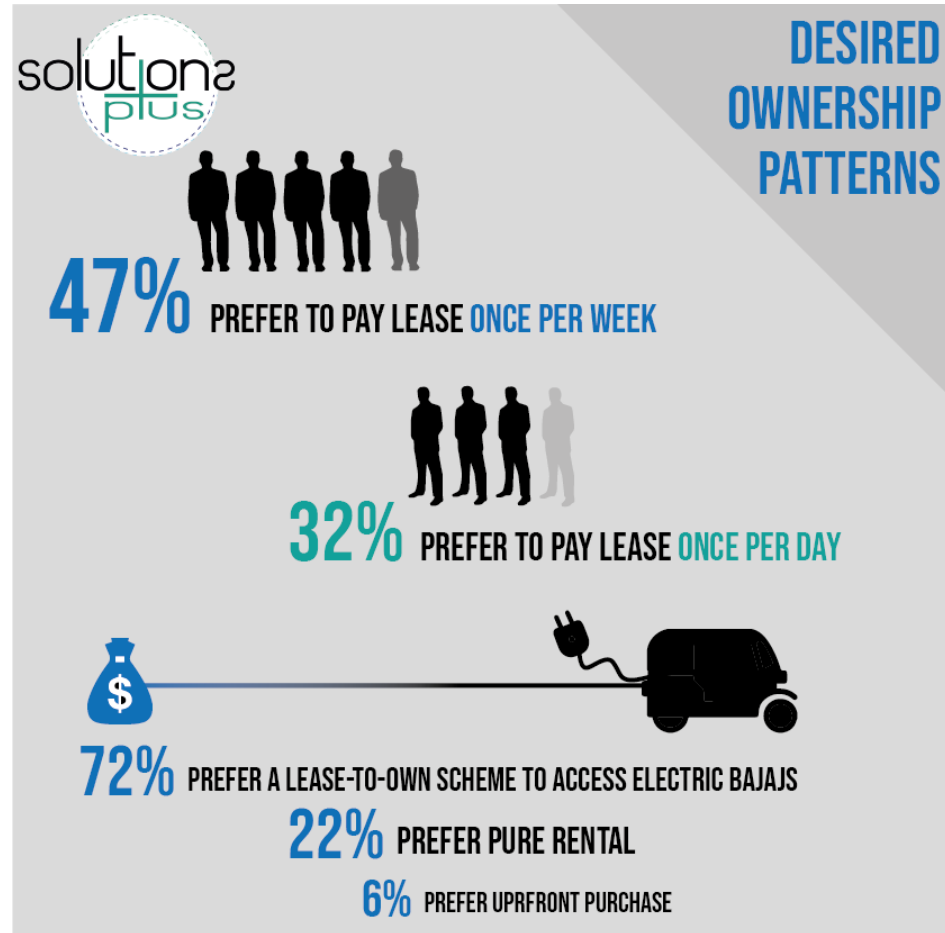
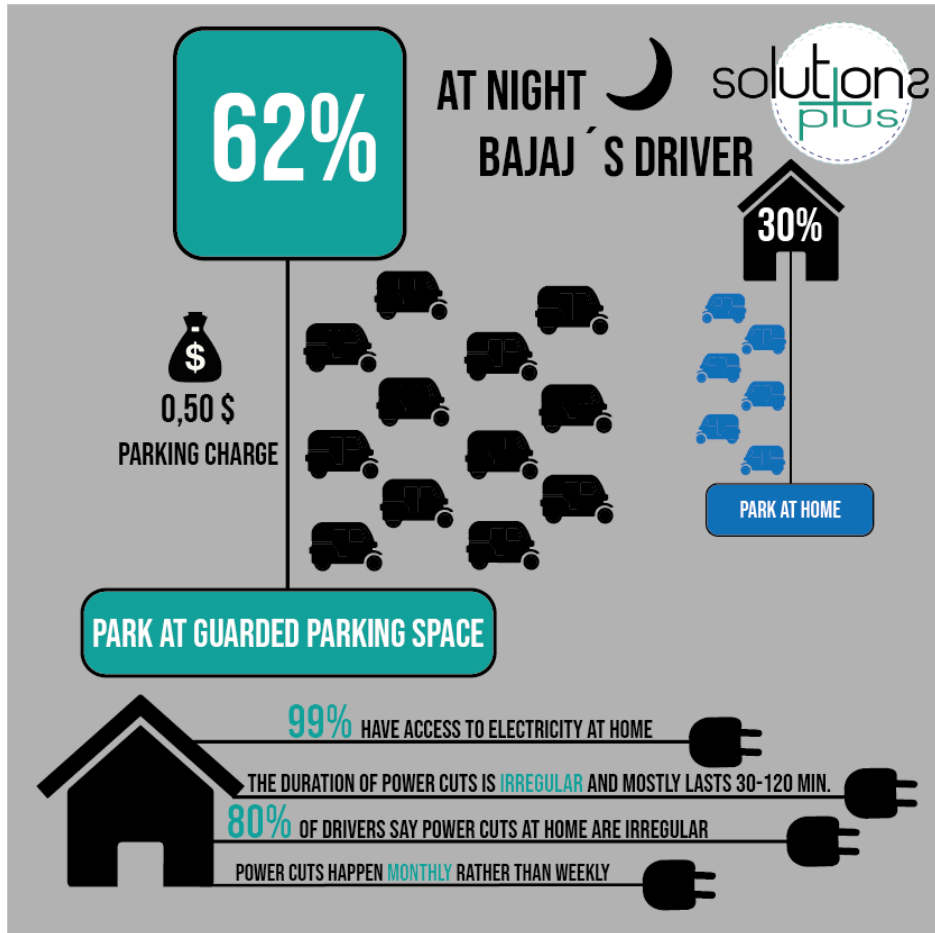


- Fuel costs represent nearly half of their daily costs; shifting to e-bajajs can represent an economic opportunity.



- There is strong interest in shifting to e-bajajs, which is positive for the pilot.

Learnings: integrating patterns & preference to the pilot design



- Considering night parking patterns are critical to ensure feasibility, as well as access to electricity and reliability.

- Integrating desired ownership patterns is essential.

And many other learnings

ICE bajajs

- **Mostly three-seaters**
- **Transfer** mostly between bajaj-dala dala, bajaj-BRT, or or bajaj only
- **Highest demand** on the Kimara Korogwe-Maji Chumvi route; strongest BRT connection at Kimara Korogwe

Areas for pilot deployment

- **8 criteria screened:** existing demand, BRT connectivity, organisation of the waiting point, road condition of the waiting point, available space for charging, interest of the drivers in an e-mobility pilot, topography of the corridor, road conditions of the corridor
- **Decision to focus on two best-ranking locations:** Kimara Korogwe-Maji Chumvi and Njia Panda ya Chuo-Changanyikeni

Barriers identification

- **Clarification of tax and regulatory environment**
- Integrated in the Barriers Report

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