

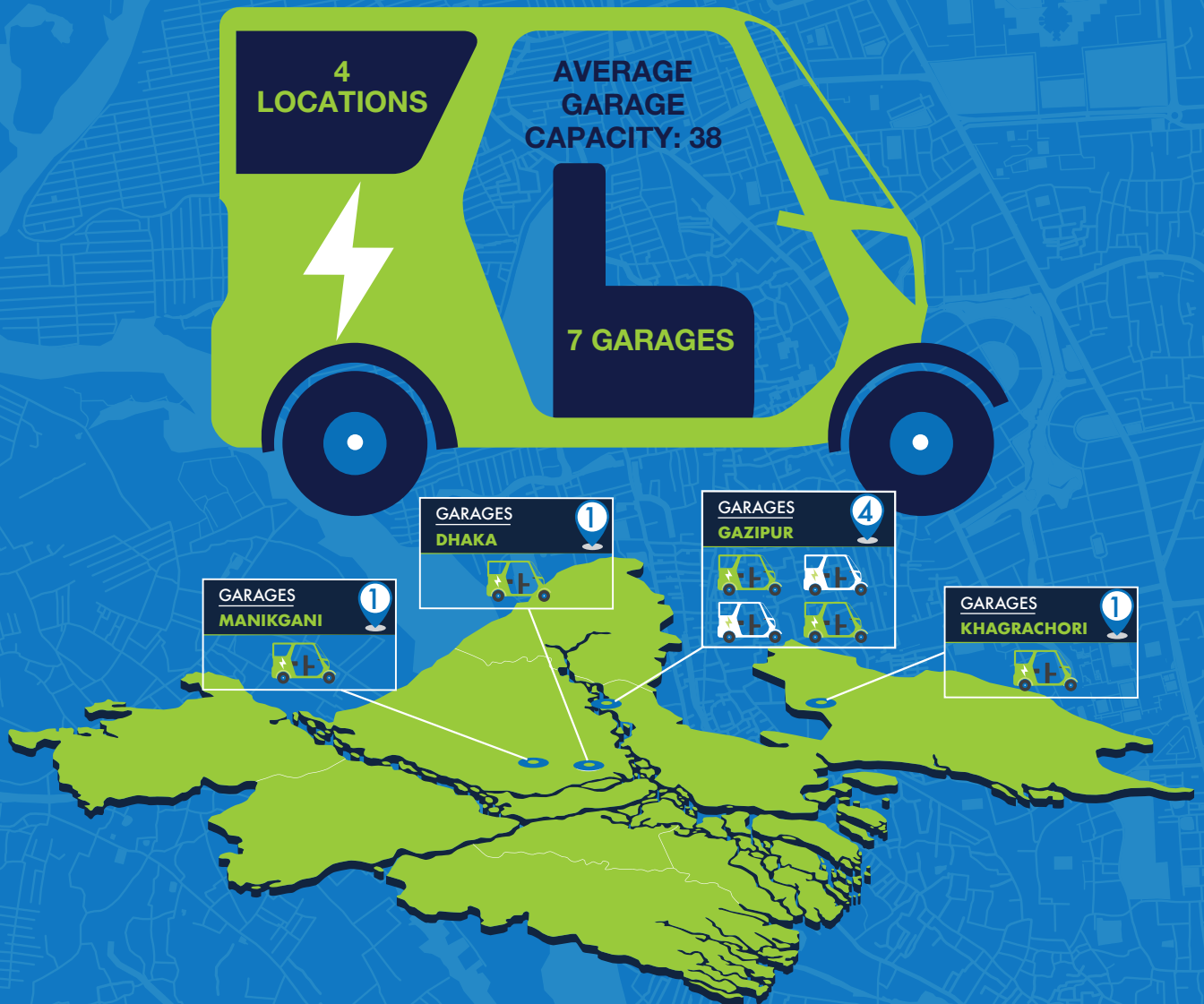
# ROAD TO A GREEN BANGLADESH

Supporting small enterprises and start-ups  
in the adoption, transition or scaling up  
of electric vehicles in their businesses  
Business cases



# GARAGES

## MARKET OVERVIEW, BUSINESS MODEL AND LOCATION



### OVERVIEW OF ELECTRIC THREE-WHEELERS MARKET

- In Bangladesh, **electric rickshaws (three-wheelers) dominate the EV market**, which mostly consists of electric rickshaws and tomtoms.
- However, it is estimated that there could be as many as **2 million electric rickshaws in the country<sup>1</sup>**, with the capital, Dhaka, having more than 1.5 million electric three-wheelers<sup>2</sup>, serving a market of no less than 20 million users.

### WHAT SERVICES ARE OFFERED BY THESE GARAGES?

- The **garages and workshops** considered for this study primarily provide **charging services to electric rickshaws** (three-wheelers) and electric tomtoms (mostly found near coastal and hilly areas).
- The electric rickshaws are kept within the garage premises and charged overnight, though charging services are provided throughout the whole day.

1. "Study on Undocumented Electric Vehicles in Bangladesh", International Journal of Industrial Electronics and Electrical Engineering, Volume-8, Issue-3, Mar.-2020. 2. SOLshare: <https://me-solshare.com>

# WOMEN ENTREPRENEURS

## MARKET OVERVIEW, BUSINESS MODEL AND LOCATIONS

8 RURAL

6 URBAN  
ENTREPRENEURS

3 LOCATIONS

### TYPES OF BUSINESSES – WOMEN ENTREPRENEURS



The rural and urban entrepreneurs came from 3 major areas in the North, Centre and South-West of the country



### RURAL ENTREPRENEURS

- The rural entrepreneurs included in this study operate easy bikes/three-wheelers for picking up and dropping off passengers.
- All of these entrepreneurs are self-employed, own one vehicle and started their business using self-finance and loans from microfinance institutions, where the average loan size was approximately BDT 150,000 (\$1,744 USD).
- On average, all of them earn BDT 700-800 (\$8.14-9.30 USD), with a daily expense of BDT 100-150 (\$1.16-1.74 USD), and travel 100-200 km.

### URBAN ENTREPRENEURS

- The urban entrepreneurs predominantly included small enterprises and Facebook-based businesses, who mainly receive orders online/through phone calls and deliver their products.
- Most of these businesses make use of third-party delivery service providers, which include larger vehicles (trucks, vans) and smaller vehicles (bikes, cars).
- Moreover, most of them have stated access to finance and/or lack of interest in EVs as a barrier to EV adoption.



# SOLSHARE

## BRINGING AFFORDABLE SOLAR ELECTRICITY TO BANGLADESH

Founded in 2014 and based in Dhaka, Bangladesh, ME SOLshare Ltd is a social enterprise that offers ICT-enabled products and services, contributing to the Global Goal 7: Affordable and Clean Energy for All. The company provides peer-to-peer solar energy exchange platforms and pay-as-you-go solutions to low-income households and micro enterprises seeking rural electrification and empowerment.

### FOUNDERS AND CORE TEAM



**Sebastian Groh**  
Managing Director



**Hannes Kirchoff**  
Co-Founder and CTO



**Daniel Ciganovic**  
Co-Founder and CFO



UNIT ECONOMICS	SOLSHARE GARAGE
Average setup cost	US\$ 2,800 (BDT 250,000)
Average garage structure cost*	US\$ 0.12 (BDT 10) per watt
Expected time to reach break-even point	18 months

### CORE PRODUCTS/ SERVICES

- Peer-to-peer microgrids.
- E-mobility solutions – new battery technology for electric three-wheelers.
- SOLapp to manage customer portfolios.
- SOLbox, SOLapp and SOLweb.

### POTENTIAL FOR IMPLEMENTING EVS

- SOLshare has a number of garages offering battery charging and leasing services for electric three-wheelers, using a combination of solar PV energy and main grid electricity.
- SOLshare has introduced a new battery technology and improved the financing conditions of market entry for electric three-wheelers.

### CHALLENGES

- **Financial:** SOLshare is yet to understand the state of the market with regards to lithium battery adoption. Once the unit economics of this are proved, SOLshare will move to support local battery distributors to shift to this.
- **Government policy:** Policies are yet to be introduced that recognize the legality of electric three-wheelers/rickshaws, even though the size and year-on-year growth of this market is extensive.
- **Access to finance:** There is a lack of access to finance for electric three-wheeler owners/drivers, as banks or microfinance institutions are unwilling to disburse capital without any form of asset securitization.

### FUTURE GOALS

- **Short-term** The immediate goal for SOLshare is to prove the unit economics of its lithium battery-leasing model, and then attract the necessary finance to expand this within the market.
- **Long-term:** By 2025, SOLshare plans to facilitate a successful convergence of the energy and transport sector in Bangladesh based on distributed solar PV and storage, and power 100,000 safe electric vehicles by smart solar PV.



# JOBIKE



## PROVIDING A DOCKLESS BIKE-SHARING SERVICE TO ENSURE FIRST- AND LAST-MILE SOLUTIONS

Jobike is the first “station-less” bike-sharing service in Bangladesh. It is an on-demand, open to all, bicycle-renting platform and an innovative solution to public transportation whether commuting to universities or work. It aims to empower personal mobility, enhance economic growth, heighten livability, and promote an active and healthy lifestyle for the citizens.

### FOUNDERS AND CORE TEAM



**Mehedi Reza**  
Founder and CEO



**Pablo Aguayo**  
Co-Founder and CMO



**Guilherme Prokisch**  
Co-Founder and CTO



UNIT ECONOMICS	PROJECTED CHANGE BY SWITCHING TO E-BICYCLES
Average ride duration	+ 6 mins
Targeted revenue per day per bike	+ 4.5x
Targeted average revenue per ride	+ 3.8x

### CORE PRODUCTS/ SERVICES

- App-based B2C bicycle rental service.
- Provides bikes at select locations to be used.

### POTENTIAL FOR IMPLEMENTING EVS

- Since Jobike already offers conventional bicycle ride-sharing services, it can offer the same service with e-bikes.
- E-bikes could serve as an alternative to motorcycle ride-sharing services.

### CHALLENGES

- **Financial:** Jobike needs financial support or to raise investments to facilitate e-bikes, the prices of which range from \$450 to \$1500. Receiving fundings for EV-based projects is considered a major hurdle at the moment.
- **Government policy:** Since the speed of e-bikes ranges from 19-25 km/h, on average, the current road traffic legislation will not permit e-bikes to travel alongside faster, larger vehicles on major roadways.
- **Potential misuse and damage:** Jobike’s bicycles, in general, have been misused and damaged in the past, and with e-bikes being more expensive, this poses a bigger issue.

### FUTURE GOALS

- **Short-term** Jobike plans to launch a pilot project with 200 e-bikes in Dhaka.
- **Long-term:** Extensive research activities are being done with e-scooters, which have the potential to be integrated with robotics, AI, and machine-learning technologies. Jobike plans to introduce these by 2023.



# LILY

## A SELF-SUFFICIENT BUSINESS ECOSYSTEM – BY WOMEN FOR WOMEN

Lily is a technology company based in Dhaka, Bangladesh, with a vision to establish a self-sufficient business ecosystem – by women for women. Currently Lily is working on two different verticals: LilyRide – a women-only ride-sharing and logistics service; and LilyTailor – an on-demand home-tailoring service for women. Lily aspires to become the one-stop solution (marketplace, services and products) for women’s day-to-day necessities.

### FOUNDER



**Syed Saif**  
Founder and CEO



UNIT ECONOMICS	PROJECTED DECREASE BY SWITCHING TO E-SCOOTERS
Average fuel/electricity cost per km	6.5x
Average fuel/electricity cost per delivery per vehicle	5.8x
Average fuel/electricity cost per day per vehicle	6.3x

### CORE PRODUCTS/ SERVICES

- A technology company solely for and managed by women.
- Tailoring and logistics services.
- Provides bike-riding training to women riders.

### POTENTIAL FOR IMPLEMENTING EVS

- Lily can incorporate e-scooters into its current business model.
- E-scooters are expected to be more cost efficient, lighter and more convenient for its riders, especially for Dhaka’s roads.

### CHALLENGES

- **Financial:** An average e-scooter made in India is relatively expensive, costing between \$560 and \$880.
- **Infrastructural:** As of December 2020, the country had just 14 EV charging points with a total capacity of 278 kW.
- **Market ambiguity:** The two-wheeler EV market is virtually non-existent.

### FUTURE GOALS

- **Short-term:** Current plans to incorporate EVs into its business model are still in the concept phase.
- **Long-term:** Lily plans to own its fleet of EVs in the long-term. Lily acknowledges that the future will move towards EVs and sustainable technologies, and thus aims to innovate and strategize accordingly.

# DHAKA CAST

## PROVIDES 360 PLATFORM SERVICE FOR DIABETIC PEOPLE AT THEIR DOORSTEPS

Dhaka Cast (DC) claims to be the country's first tele-consultation platform dedicated to diabetic patients. The platform has been designed to keep in mind affordability and accessibility as two main focus areas. It's been seen that diabetic patients spend 6x more than non-diabetic patients on their healthcare costs and over 50% go untreated due to lack of access to quality doctors/healthcare professionals.

### FOUNDERS AND CORE TEAM



**Dr. Fahreen Hannan**  
Founder and CEO



**Prof. Dr. Montasir Islam**  
Chairman



**Dr. Ahmedul Haque**  
Chief Consultant



UNIT ECONOMICS	PROJECTED DECREASE BY SWITCHING TO E-BICYCLES
Average delivery distance	+ 10-15 km
Average fuel/electricity cost per km per delivery	4x
Average fuel/electricity cost per delivery	1.4x

### CORE PRODUCTS/ SERVICES

- 24/7 specialist doctor consultancy online and offline.
- Diabetic medication and food home delivery.
- Nurse, caregiver, physiotherapy service at home.
- Dietician and nutritionist service.
- Diagnostic and lab support.

### POTENTIAL FOR IMPLEMENTING EVS

- Using EVs for its medicine delivery and transportation of nurses and physiotherapists.
- Dhaka Cast does not own its own fleet of vehicles and needs to rely on the support of its partners – two online medical stores in Dhaka.

### CHALLENGES

- **Financial:** DC is an early-stage start-up and yet to reach break-even point. DC would have to rely on investors to finance the vehicles.
- **Government policy:** When DC had its own delivery drivers, at times they would fail to find the correct addresses and make the deliveries on time. This would lead to negative reviews from the customers, and, in some instances, discontinuity of services.
- **Market ambiguity:** The manufacturing and repair of EVs in Bangladesh, plus the availability of accessories, are in the nascent stage and only when the market scales up will EV uptake for start-ups like DC be easier.

### FUTURE GOALS

- **Short-term:** Within the next two years, Dhaka Cast wants to cover all areas of Dhaka, along with starting its operations in four other major cities.
- **Long-term:** Dhaka Cast wants to conduct pilot projects with its own fleet of vehicles with a number of its upcoming services.



# ADVANCED DYNAMICS

## ENABLING THE CREATION, GROWTH AND MOBILITY OF SUSTAINABLE SOCIETIES

Advanced Dynamics is an electric vehicle manufacturing company, working towards making transportation sustainable and affordable. It specializes in the supply of fully integrated and bespoke feeding, filling, labelling and wrapping machinery, with equipment ranging from a simple entry-level ‘flash’ labeller all the way through to fully automatic wrapping and filling lines.

### FOUNDERS AND CORE TEAM



**Ad Ahmed**  
Founder and CEO



**Gopal Kumar Mohoto**  
Co-Founder and CTO



**Tauseef Anwar**  
Co-Founder and CBO



UNIT ECONOMICS	PROJECTED DECREASE BY SWITCHING TO E-SCOOTERS
Average fuel/electricity cost per km	2x
Co <sup>2</sup> cost per peak congestion period	\$1,500

### CORE PRODUCTS/ SERVICES

- Offering solar electric vehicles for efficient urban commuting.
- Building e-bikes for logistics, e-commerce and office transport needs.
- Solar-powered battery-swapping service for last-mile transport.

### POTENTIAL FOR IMPLEMENTING EVS

- Already selling electric vehicles and e-bikes.
- Sells EV batteries.
- Offers EV installation services for toto vehicles/rickshaws.

### CHALLENGES

- **Maintenance:** Since Advanced Dynamics maintains a huge fleet of vehicles, predictive maintenance and repairs pose a huge challenge due to the lack of trained professionals and repairmen.
- **Infrastructural:** As of December 2020, the country had just 14 EV charging points with a total capacity of 278 kW.
- **Government policy:** One of the major difficulties for Advanced Dynamics to consider is current government policy on the use of boxes on the back of the bikes/scooters (which is not specific to EVs).

### FUTURE GOALS

- **Short-term:** Advanced Dynamics has already consulted with a handful of EV manufacturers (including Mahendra India and Tata India) to discuss the potential benefit of using EV trucks or vans for its deliveries. It has also conducted a cost-benefit analysis of using EVs.
- **Long-term:** The use of EVs and self-driving vehicle technology is heavily intertwined, which makes self-driving EVs a possible alternative for logistics and delivery in its warehouses or specific locations.

# SHUTTLE

## OFFERING SAFE TRANSPORTATION DURING LOCKDOWN

Shuttle is a mass-transit start-up based in Bangladesh that provides safe transportation at an affordable price by moving more people with fewer vehicles and catering to B2B and B2C customers. Shuttle is an app-based service, but users can also call on the hotline number to book a ride. Within a very short period, it has become the staple vehicle for hundreds of women around the city.

## FOUNDERS AND CORE TEAM



**Reyasat Chowdhury**  
Founder and CEO



**Jawwad Jahangir**  
Co-Founder and COO



**Shah Sufian**  
Co-Founder and CTO



UNIT ECONOMICS	PROJECTED DECREASE BY SWITCHING TO EV MINIVANS
Average fuel/electricity cost per km	2x
Average targeted price per ride per customer	1.8x
Average fuel/electricity cost per day per vehicle	1.8x

## CORE PRODUCTS/SERVICES

- An app-based transportation solution for B2B and B2C customers, with special focus on women's transportation.
- One-stop reliable vehicle rental solution for businesses and individuals.

## POTENTIAL FOR IMPLEMENTING EVS

- Shuttle can offer its current services with EV minivans and minibuses.
- Shuttle aims to switch to EVs to bring down the cost per trip, allowing a lower price for customers and capturing a larger market share.

## CHALLENGES

- **Financial:** All of Shuttle's vehicles in its current fleet are rented from local suppliers.
- **Infrastructural:** As of December 2020, the country had just 14 EV charging points with a total capacity of 278 kW.
- **Market ambiguity:** The manufacturing and repair of EVs in Bangladesh, plus the availability of accessories, are in the nascent stage and only when the market scales up will EV uptake for start-ups like Shuttle be easier.

## FUTURE GOALS

- **Short-term:** Current plans to incorporate EVs into its business model is still in the concept phase.
- **Long-term:** Shuttle plans to have its dedicated fleet of EVs within the next 3-4 years.

# CHALDAL

## THE LEADING ONLINE GROCERY DELIVERY COMPANY IN BANGLADESH

Chaldal is an on-demand grocery delivery service that provides a wide range of products to its users in Dhaka – groceries, fresh produce, diapers, cleaning supplies etc. The company uses an inventory-based model and has 13 warehouses. It aims to make everything more accessible and affordable by reducing human effort and error.

### FOUNDERS AND CORE TEAM



**Waseem Alim**  
Founder and CEO



**Tejas Viswanath**  
Co-Founder and CTO



**Zia Ashraf**  
Co-Founder and COO



UNIT ECONOMICS	PROJECTED DECREASE BY SWITCHING TO E-TRUCKS	PROJECTED DECREASE BY SWITCHING TO E-BIKES
Average fuel/electricity cost per km per vehicle	1.6x	10x
Average fuel/electricity cost per delivery per vehicle	1.5x	7x
Average fuel/electricity cost per day per vehicle	1.5x	7x

### CORE PRODUCTS/ SERVICES

- On-demand grocery delivery service.
- Uses software to connect discrete parts of the supply chain and provides real-time information.
- Enables cashless transactions in the Chaldal ecosystem.

### POTENTIAL FOR IMPLEMENTING EVS

- Chaldal can implement a range of vehicles (e-trucks, e-bicycles, e-bikes) into its current delivery chain.
- 261 manufacturers and suppliers; 108,510 sq ft warehousing space.

### CHALLENGES

- **Maintenance:** Since Chaldal maintains a huge fleet of vehicles, predictive maintenance and repair downtime are a huge challenge due to the lack of trained professionals and repairmen.
- **Infrastructural:** As of December 2020, the country had just 14 EV charging points with a total capacity of 278 kW.
- **Government policy:** One of the major challenges or issues to consider for Chaldal is current government policy on the use of boxes on the back of the bikes/scooters (which is not specific to EVs).

### FUTURE GOALS

- **Short-term:** Chaldal has already consulted with a handful of EV manufacturers (including Mahendra India and Tata India) to discuss the potential benefit of using EV trucks or vans for its deliveries. It has also conducted a cost-benefit analysis of using EVs.
- **Long-term:** The use of EVs and self-driving vehicle technology is heavily intertwined, which makes self-driving EVs a possible alternative for logistics and delivery in Chaldal's warehouses or specific locations.



# PAPERFLY

## THE ECOMMERCE FULFILLMENT AND NATIONWIDE DELIVERY SOLUTION

Paperfly is one of the largest logistics companies with warehousing and fulfillment facilities, integrated with an efficient doorstep delivery service, covering the whole of Bangladesh at union level. Having started the operation in February 2016, the company has the widest cash-on-delivery coverage and handles the highest volume in the country. The whole operation is backed by state-of-the-art technology, which has been developed from scratch.

### FOUNDERS AND CORE TEAM



**Rafiq Islam**  
Co-Founder and CEO



**Rahath Ahmed**  
Co-Founder and CMO



**Md. Razibul Islam**  
Co-Founder and COO



**Shamsuddin Ahmed**  
Co-Founder and CTO



UNIT ECONOMICS	PROJECTED DECREASE BY SWITCHING TO E-TRUCKS	PROJECTED DECREASE BY SWITCHING TO E-BIKES
Average fuel/electricity cost per km	2x	6x
Average fuel/electricity cost per delivery per vehicle	2x	6x

### CORE PRODUCTS/ SERVICES

- End-to-end logistics fulfillment service for e-commerce players.
- Footprint across 64 districts at union level.
- Automated and paperless operations.
- One platform for entrepreneurs to sell to anyone and deliver anywhere in Bangladesh.

### POTENTIAL FOR IMPLEMENTING EVS

- Paperfly can implement a range of vehicles (e-trucks, e-bicycles, e-bikes) into its current delivery chain.

### CHALLENGES

- **Financial:** Since Paperfly is a third-party logistics provider, its vehicles are rented and not owned by the company. As such, its primary option is to incentivize providers and educate them to incorporate EVs in the ecosystem.
- **Infrastructural:** As of December 2020, the country had just 14 EV charging points with a total capacity of 278 kW.
- **Market ambiguity:** The manufacturing and repair of EVs in Bangladesh, plus the availability of accessories, are in the nascent stage and only when the market scales up will EV uptake for start-ups like Paperfly be easier.

### FUTURE GOALS

- **Short-term:** Current plans to incorporate EVs into its business model are still in the ideation and research phase. Paperfly has discussed how to implement the pilot through its fleet.
- **Long-term:** Paperfly is hopeful that financial institutions will be providing funding for EV-based projects, enabling Paperfly to have its own fleet of two-wheeler and four-wheeler EVs.

# SAFEWHEEL

## MOVING WHEELS, SAVING LIVES

Safewheel is building a marketplace for medicines and pathology lab tests. Customers can order medicines and lab tests from the convenience of their home from the Safewheel app or website. Previously, Safewheel provided affordable ambulances and on-demand emergency medical services in rural areas. This is temporarily suspended but due to restart in the near future.

## FOUNDERS AND CORE TEAM



**Rafiq Islam**  
Co-Founder and CEO



**Anas Hossain Makki**  
Co-Founder and COO



**Faysal Islam**  
Co-Founder and CBDO



UNIT ECONOMICS	PROJECTED DECREASE BY SWITCHING TO EV MINIVANS
Average fuel/electricity cost per km	2x
Average fuel/electricity cost per day per vehicle	2x

## CORE PRODUCTS/ SERVICES

- Orders authentic medicines collected directly from the manufacturer.
- Provides monthly purchase reminders for chronic disease medicines.
- Books lab tests digitally.

## POTENTIAL FOR IMPLEMENTING EVS

- Incorporating EVs into its delivery chain and ambulance services.
- Safewheel believes that there is abundant inefficiency in the current transportation ecosystem, along with the rising cost of fuel, making transportation more expensive.

## CHALLENGES

- **Supply side issues:** Within the policy and regulatory framework of Bangladesh, there is no focus on EV components, which result in high tariffs (50-60%).
- **Market ambiguity:** The manufacturing and repair of EVs in Bangladesh, plus the availability of accessories, are in the nascent stage and only when the market scales up will EV uptake for start-ups like Safewheel be easier.

## FUTURE GOALS

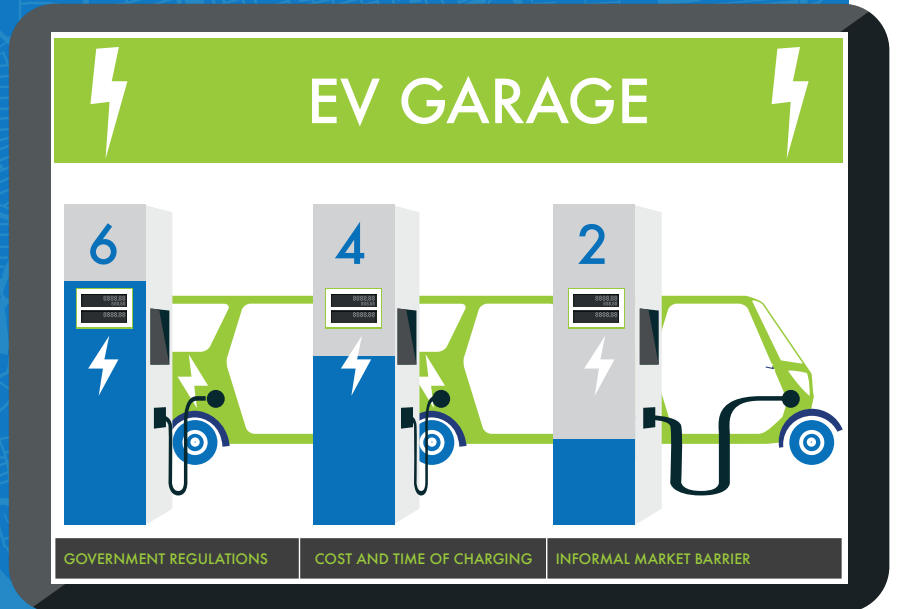
- **Short-term:** Over the next 2-3 years, it plans to go through the concept phase for the proper implementation of EV in their fleet.
- **Long-term:** Over the long-term, Safewheel wants to establish itself as a strong case model and reliable choice for EVs in the Bangladeshi market across various sectors – transport, logistics, etc.

# ADVISORY SUPPORT FINDINGS

## MAJOR CHALLENGES AND INTEREST IN EVS

### CHALLENGES FACED BY THE GARAGE OWNERS

Garages that provide charging services to electric three-wheelers often face a lack of demand as they are deemed to be illegal under the current legislation.

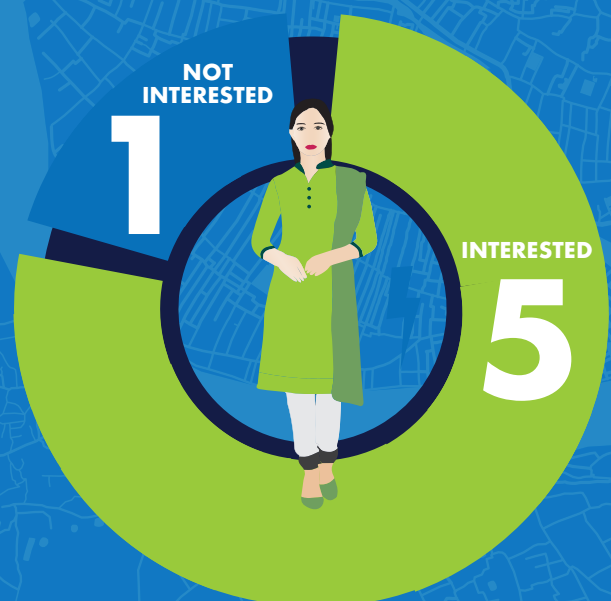


### CHALLENGES FACED BY THE START-UPS

The start-ups mentioned lack of knowledge and awareness surrounding the EV ecosystem and access to finance as the topmost challenges.

### URBAN WOMEN ENTREPRENEURS' INTEREST IN EVS/ FINANCE FOR EV

Most urban women entrepreneurs were interested in EVs or finance for EVs. However, they stated lack of knowledge of EVs or access to finance as the major barriers.





# OPPORTUNITIES

## MAJOR CHALLENGES AND INTEREST IN EVS

### IMPACTED GROUPS

START-UPS

GARAGE OWNERS

WOMEN ENTREPRENEURS



#### ACCESS TO FINANCE

- EVs are not considered legal under the current legislation. There is a lack of financial instruments by FIs to finance the purchase of EVs for start-ups and the garage owners/rural entrepreneurs.



- EVs are seen as risky ventures, so FIs are hesitant to finance such projects.



- EVs are typically expensive, especially for start-ups that are yet to reach break even.



#### LACK OF KNOWLEDGE & MARKET AMBIGUITY

- The manufacturing and repair of EVs in Bangladesh, plus the availability of accessories, are in the nascent stage and only when the market scales up will EV uptake for businesses and entrepreneurs be easier.



- Large amounts are currently invested in the fuel-based automobile industry in terms of manufacturing, sourcing, distribution, service and maintenance hence, there is significant resistance expected for EV adaptation.



#### POLICY & REGULATORY FRAMEWORK

- There's a policy yet to be introduced which recognizes the legality of electric three-wheelers/rickshaws, even though the size and year-on-year growth of this market is substantial.



- The country's undeveloped infrastructure is a major hurdle in the way of EV adoption in Bangladesh. As of December 2020, the country had just 14 EV charging points with a total capacity of 278 kW.



# UK PACT

GREEN RECOVERY  
CHALLENGE FUND

# ROAD TO A GREEN BANGLADESH

**FIND OUT MORE**

[britbanglabusinesssupport.co.uk](http://britbanglabusinesssupport.co.uk)

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