Battery Swapping Business Model:
The Case of Lithion Power

Nandan Kumar Singh

https://orcid.org/0000-0003-1963-9114
Indian Institute of Management, Visakhapatnam, India

Vinay Ramani
Indian Institute of Technology, Kanpur, India

EXECUTIVE SUMMARY

Lithion Power is India's leading provider of battery as a service, supplying lithium-ion batteries for e-bikes and three-wheelers. They use the battery swapping technology to power electric vehicles. Lithion's omni-charging technology allows electric vehicles to either charge at home, at public chargers or at a Lithion Swapping Point (LSP), primarily spread across North Delhi and the nearby state of Haryana. At these LSPs, a customer can drive in with their existing battery and in a less-than-five-minute walk away with a charged battery. Lithion is collaborating with major operators and original equipment manufacturers (OEMs) to make an all-electric India a reality by 2030. Key to Lithion's business model is a battery management system (BMS) that allows the optimal use of the battery, thereby extending its use life. This chapter discusses Lithion's battery swapping service model and puts it in the context of circular economy.

ORGANIZATION BACKGROUND

Piyush Gupta, an Indian Institute of Technology, Kharagpur graduate with an MBA from INSEAD, founded Lithion Power in 2017 with Chandrashekhar Bhide, a computer science graduate from the Indian Institute of Technology, Bombay with MBA from the Indian Institute of Management, Ahmedabad. Lithion originally began with the idea of developing an electric bus, which was a genuinely audacious endeavor. After a year of learning, they shifted their focus to batteries, which resulted in the formation of Lithion Power. It began with an agenda devised by India's most renowned and technically competent battery specialists. They initially focused on developing a Battery Management System (BMS) tailored to Indian conditions and a telemetry device before launching a battery/energy as a service business. Lithion began commercial operations in 2018. Currently, it has over 250 assets on the platform. Lithion focuses on the business-to-business (B2B) industry. It has a presence in Delhi, India and the National Capital Region (NCR), as most EVs are based in and around Delhi and NCR.

The Indian government is taking multiple initiatives to boost EV adoption in the country, including the implementation of different subsidies and incentives for manufacturers and automobile purchasers. The benefits vary according to the Indian state in which the consumer resides. State governments have subsidized EV adoption by offering incentives to electric car customers in addition to the federal government's subsidies. Delhi is the state in India that provides the most significant incentives for electric vehicles (CarDekho, 2021). It is equivalent to the federal government's subsidies. As a result, the benefits of purchasing an electric vehicle in Delhi can be roughly double of those in other states. Additionally, under the existing program, the state government waives registration and road tax on all electric vehicles. The Delhi government website (Delhi, n.d.). presently lists 169 charging stations and 377 charging points, making this one of the largest cities in the country to have such an infrastructure.

Lithion was a finalist in the Electricite de France (EDF) Innovative products and services that improve the value chain of e-mobility infrastructure, including charging and battery swapping stations, EV system components such as the electricity network, energy production, and storage, and was also named to the Economic Times' list of India's Top Innovative MSMEs (Economic Times, 2021) because of their *omni-charging technology* which allows electric vehicles to either charge at home, at public charging points,

21 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage: www.igi-global.com/chapter/battery-swapping-business-model/312034

Related Content

Statistical Metadata Modeling and Transformations
Maria Vardaki (2009). *Encyclopedia of Data Warehousing and Mining, Second Edition (pp. 1841-1847).*
www.irma-international.org/chapter/statistical-metadata-modeling-transformations/11069

Visual Data Mining from Visualization to Visual Information Mining
Herna L. Viktorand Eric Paquet (2009). *Encyclopedia of Data Warehousing and Mining, Second Edition (pp. 2056-2061).*
www.irma-international.org/chapter/visual-data-mining-visualization-visual/11102

Program Comprehension through Data Mining
Ioannis N. Kouris (2009). *Encyclopedia of Data Warehousing and Mining, Second Edition (pp. 1603-1609).*
www.irma-international.org/chapter/program-comprehension-through-data-mining/11033

Ensemble Data Mining Methods
Nikunj C. Oza (2009). *Encyclopedia of Data Warehousing and Mining, Second Edition (pp. 770-776).*
www.irma-international.org/chapter/ensemble-data-mining-methods/10907

Preservice Teachers Collaborating and Co-Constructing in a Digital Space: Using Participatory Literacy Practices to Teach Content and Pedagogy
Chrystine Mitchelland Carin Appleget (2020). *Participatory Literacy Practices for P-12 Classrooms in the Digital Age (pp. 215-232).*
www.irma-international.org/chapter/preservice-teachers-collaborating-and-co-constructing-in-a-digital-space/237423