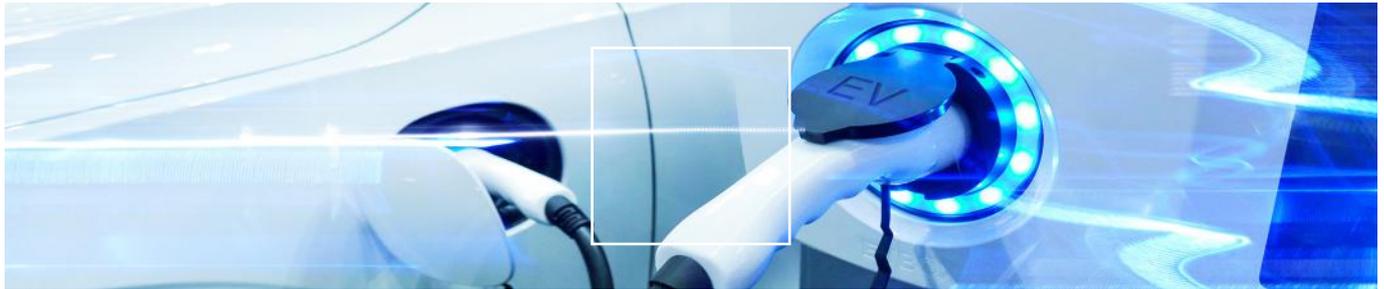


# Electric mobility roll-out in Latin America – The arduous road to success

*ADL explores success factors for premium BEV roll-out in Latin America*



Market introduction of full battery electric vehicles (BEVs) is, in many aspects, more complex than launching regular internal combustion engine cars (ICEs), and therefore represents a challenge in itself. However, it is an even greater challenge in emerging markets, where importers and dealers often lack the experience, know-how and resources to successfully bring BEVs to the market. Furthermore, market conditions require a great deal of adjustment to the prevalent market models. The infrastructure to support BEVs is still in its very early stages, especially for regions such as Latin America. To ensure a successful roll-out in Latin America, OEMs will have to provide active guidance and support to importers in order to develop tailored solutions that fit these environments. Arthur D. Little has experience in successfully launching BEVs in these challenging market environments.

## Important Latin American car markets face significant challenges when introducing BEVs

With roughly 650 million people and splendid economic prospects as an emerging region, Latin America is of strategic importance for all global automotive OEMs. Many European, North American and Asian manufacturers have been successful in establishing themselves in Latin America’s premium market segment. Yet, getting a foothold in the region can prove difficult if market-specific conditions are not considered carefully. We have analyzed the key aspects for OEMs looking to enter the region with battery electric vehicles (BEVs). Despite high diversity across the region, Latin American markets face similar challenges with the introduction of BEVs. Taking them into account will be essential when planning forthcoming roll-outs.

### Roll-out challenges in Latin America

Public charging	Home grid connection	Partnerships
 <ul style="list-style-type: none"> <li>Very few charging stations across all countries/cities</li> <li>Fragmented public charging landscape</li> </ul>	 <ul style="list-style-type: none"> <li>Poor electric grids cause slow charging speeds</li> <li>Electric grid upgrades are sometimes necessary</li> </ul>	 <ul style="list-style-type: none"> <li>Local partners do not have experience with BEVs</li> <li>Partners are sometimes inexistent for specific service areas (e.g. battery recycling)</li> </ul>

Source: Arthur D. Little

## BEVs are new to Latin America

Most Latin American markets have only had scarce experiences with electric vehicles (EVs) so far. Many have not even seen plug-in hybrid vehicles (PHEVs) yet, so importers and dealers are unable to build upon previous knowledge obtained in past roll-outs. Subsequently, everything from standards implementation, dealer training and legal requirements through to aftersales challenges is new, and needs to be thoroughly analyzed and defined before the market introduction of a BEV. Most importers will require substantial guidance and support from their OEMs to gain clear understanding of what this product introduction will mean for their markets.

## Status symbol: Customer demand for BEVs is mainly driven by premium brand image

### Latin American customers of premium BEVs

-  Affluent, less price-sensitive
-  Concentrated in 2-3 cities per country
-  Drive an average of 30 km per day
-  Have access to private parking for vehicle charging

Source: Arthur D. Little

Latin America still leads the polls in terms of income inequality, which means the relatively small percentage of economic elites

are able to amass a great deal of economic power. These clients are usually very affluent and tend to be less price-sensitive than customers from other regions, which reduces the importance of total cost of ownership as a purchase criterion when buying an electric vehicle.

These customers have access to private parking where they can charge electric vehicles. Depending on the country or region, an electric-grid upgrade might be necessary, though. Customers from Latin America drive an average of 30 km per day. For occasional long-distance trips, this customer segment has access to second vehicles or other means of transport which thus minimizes the negative impact of the limited range of BEVs. In addition, customers are usually concentrated in only a handful of cities in their respective countries.

### Public charging is largely unavailable in Latin America

Latin America suffers from the chicken-and-egg problem at a very early stage – not many electric vehicles are available since the public charging infrastructure is very limited and, in turn, the public charging infrastructure is scarce because there are too few EVs. Generally, in larger countries the tendency is that one or few players dominate the public charging landscape (usually a utility company or an established gas station network), whereas in smaller countries, the public charging landscape tends to be highly fragmented. Charging points are usually few in numbers and power tends to be low (11 kW and below).

#### Public charging availability in Latin America



Source: Arthur D. Little

writing. Most electric vehicles in the market come from either Asia or the United States, which have their own respective charging-plug systems, CHAdeMO and Mode 2. European OEMs have adopted another type of plug, the Mode 3. The question of which standard will assert itself in the region is currently uncertain, and will depend on future vehicle offerings. This situation makes it difficult for OEMs to find reliable public charging partners to cooperate with. So for the next couple of years customers are likely to rely mostly on charging at home.

### Significant discrepancies in home grid connections between markets and even regions

Most countries in Latin America have single-phase electric supplies in residential homes. However, in many cases supplies can be upgraded to three-phase currents. Depending on the voltage and amperage available, this can mean power output from as low as 3.6 kW up to 22 kW for a privately installed EV charger. For larger batteries of 90 kWh or higher, that leads to a difference that drastically changes the customer's charging experience (from a full day to five hours for a full charge). With the most common residential connections, an average output of 8 kW can be reached in Latin America, which would equal roughly 12 hours for a full charge.

It becomes evident that ensuring charging infrastructure at a client's home will have significant impact on the customer experience and the popularity of BEVs. Therefore, it is crucial to arrange for installation solutions with qualified partners to ensure the best electric output and most convenient solution possible for customers. Partnerships and agreements with utility companies and installation service providers need to be set up very early in the roll-out process (~18 months before the start of sales).

### There is limited demand for many of the premium solutions developed for Western markets

Many product offerings designed for Western markets fail to meet local market conditions. Examples of these technologies are inductive charging and smart-home integration offers. Due to low levels of smart-home penetration and weak electric connections in most households in the region, these products tend to be either too slow for real client use, to not work properly due to missing technical requirements such as connected-car features, or to be too expensive without practical benefit or not reliable enough for tough climate conditions.

### Local partners have to be identified within the regional BEV ecosystems

Dealing with BEVs and the infrastructure they entail is essentially uncharted territory for most importers and dealers in the region. Most will have to rely on local partnerships to satisfy installation needs, electricity upgrades, and services such as repair and recycling of high-voltage batteries. In particular, smaller markets have not yet developed a wide range of solutions, so complex work-arounds are sometimes needed to ensure local, regional or international solutions to meet key necessities.

Partnering with – often state-controlled – electric utility companies, gas station operators, and local transport and traffic authorities has proven beneficial for infrastructure and BEV

ecosystem set-up. Time requirements for partner identification, alignment and work planning, and setting up the paperwork from letters of intent to final contracts are significant and should not be underestimated. This also requires substantial resources in terms of dedicated personnel.

## Importers in small markets face management capacity constraints

Unlike importers or national sales companies in Brazil or Mexico, which move large volumes of vehicles in their markets and hence have many employees at their disposal, many importers in smaller countries suffer from lack of personnel available to spearhead such projects. Finding free capacities which can handle required BEV-related topics for the period of the roll-out, i.e., at least two years, is hard or impossible for small wholesale and retail organizations.

But since the topics covered during BEV roll-out are complex and new, having enough staff to take on the workload is essential to avoid delays. Furthermore, many aspects of rolling out BEVs require negotiating and signing agreements with third parties, a process usually subject to lengthy negotiations and decision-making. Thus, clear responsibilities and accountability are required as well. Rolling out the first BEVs in a market should not be delegated to lower hierarchy levels, but instead requires sufficient management attention.

## Reducing complexity: Few dealerships are sufficient for premium BEV market entry

Thanks to customer concentration in a handful of cities in most Latin American countries, only a few dealerships in strategic locations are needed to cover most of the customer base. While this is true for large countries such as Mexico, Brazil and Argentina, it becomes even more so for small countries where most of the affluent populations are located within single cities. The reduced number of dealerships directly translates into less locations that need to be analyzed, managed, trained and tracked, which ultimately leads to less complex roll-out management.

With that in mind, local training needs at these locations still must be identified and their implementation secured. Infrastructure upgrades and investments in dealer facilities can be limited to reasonable amounts and should be carried out focused and well prioritized, considering the expected BEV sales and service volumes per dealer outlet.

## Success factors of BEV roll-out in Latin America: Agility is key – adjust to regional pull, rather than push from HQ



Source: Arthur D. Little

The local market conditions in Latin American countries limit the reasonable scenarios for the overall product portfolio: The offering structure needs to be carefully adapted to the local context – which often means reducing the line-up of products and services to affordable and technically simple and reliable solutions.

Getting the basics right (e.g., providing working and convenient solutions for home charging or making sure there is a battery-repair solution in place) outweighs any fancy add-ons. Solutions that require significant residential electric power, for example, will most likely succumb to the region's overall infrastructure condition. On the other hand, offering strong warranties and other service packages (EV components, etc.) will give customers the required peace of mind.

## Push partner selection is crucial for successful implementation

Since some activities concerning BEVs will inevitably have to be externalized to third-party contractors, it is crucial to select the right partner and set up clear cooperation agreements at early stages of the roll-out process. Identifying a potential partner can pose a problem in the region, in particular for small markets, where availability of specialized services tends to be limited. In addition, negotiating partnerships and defining all processes and activities are time-consuming in general, and even more so in Latin America, where potential partners have virtually no experience with EVs and their ecosystem so far.

It is therefore crucial to perform a thorough analysis of all options available and begin negotiations in due time. Partnering in cross-border alliances with importers in different markets can, for example, decrease the complexity and effort during set-up, help to reduce costs and improve the service quality due to higher volumes and more opportunities for the contractor to gain experience. Legal and practical limitations have to be considered, though.

## Important local stakeholders for BEV roll-outs

Customer-facing partners	Internal partners
<b>Local charging partner</b> Provides public access to charging stations	<b>Recycling partner</b> Provides local recycling solutions for batteries
<b>Installation provider</b> Provides installation services at customers' homes	<b>Local utility</b> Can provide dealership and residential grid upgrades
<b>Green energy provider</b> Offers residential green energy to customers	<b>Transportation partner</b> Transports damaged batteries to/ from point of service

Source: Arthur D. Little

available in particular countries or areas of the market. In those cases, regional solutions which cluster groups of countries should be considered. This would allow smaller markets to leverage their capabilities, share investment burden and reduce the need for complicated work-arounds. Low language barriers and close cultural proximity within the Latin American region can function as a catalyst to facilitate these arrangements.

## Actively manage the market roll-out with proper project set-up and ongoing support from the OEM

Importers will require proper onboarding to familiarize themselves with the BEV topic and the challenges which will arise during the roll-out. This is a task for the OEM HQ, which needs to make sure all required information is accessible to the local importers before and during the roll-out. Providing a standardized "roll-out book" with all necessary information has proven to be a very helpful tool to guide and support local teams in the markets. Also, having a dedicated roll-out manager at the OEM to look after a defined set of markets and be the counterpart for the local teams is a key success factor. On the importer side, a dedicated roll-out team needs to be allocated to ensure the project's success. Key people should stay on the job for the duration of the roll-out. Given the complex nature of the task, it is always difficult to transfer implicit knowledge or personal relationships from one person to another.

Last but not least, progress tracking will be essential in identifying support needs early and keeping the required commitment for the roll-out. The level of support and guidance provided by the OEM will determine the effectiveness. Experience shows that monthly touch-points and regular workshops, and sometimes also ad-hoc intervention, help to keep up the pace in a challenging and long process.

The Latin American market is certainly not the easiest for premium BEV roll-out, but car market size and growth make it impossible to ignore it. Hence, a carefully adapted approach is crucial.

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