The Strategic U-Turn That Would Jumpstart the Electric Vehicle Industry

Warren Schirtzinger
High Tech Strategies, Inc.

January 2020

Introduction

You would never know it from reading the avalanche of news about the automobile industry and its transition to electric vehicles.... but global EV sales actually declined 28% in October 2019.

The "EV Sales Blog" reports that in October, passenger plug-in car sales amounted to just over 149,500 units, which is 28% less than a year ago. Overall market share also declined to 1.9%. Analysts are concluding that the "plugin market crisis has deepened."

Industries that experience recurring, unpredictable ups and downs eventually discover that the key to long-term, accelerated growth is developing an offering that the mainstream perceives as “low risk.”

Watching the Wrong Channel

Publications covering the EV space are quick to point out that demand for electric vehicles has been hampered by fears over the driving range of the cars, a lack of charging infrastructure and high sticker prices. Unfortunately, these are not the true barriers to EV adoption.

Range, infrastructure and prices are not the biggest barriers to EV adoption, and the EV industry would ignite mass-market adoption by focusing on the one thing that has made other technology-based industries successful overnight.... ***the perception of low risk.***

Many great innovations, social movements and new technologies take decades to achieve mainstream mass-market adoption, primarily because of a failure to emphasize and deliver the perception of low risk. The solar industry for example has failed to create a low-risk offering and homeowner-adoption rates have remained below 10% for decades. In fact, the U.S. solar industry's recently-celebrated milestone -- one million solar roofs -- took 40 years to achieve!!

A Death in the Family

On July 23, 1915 my great-aunt Margaret was the very first person to be killed by an automobile in the State of Ohio.

In 1915, the automobile was a new innovation and less than 10% of all families owned cars, which means the primary form of transportation was based on horses. My grandfather talked about what happened on that day in 1915 many times while I was growing up. As traumatic as the loss of a sister was for my grandfather, his most detailed descriptions were about the unexpected reactions and statements made by members of the local community.

My grandfather often said that the strange and unusual comments he received, specifically about the new innovation called the automobile, fell into three distinct categories:

1. a very small percentage of people (about 2%) said: *your sister's death is a terrible tragedy, and it is very unfortunate. But it is the price of progress*.

2. a somewhat larger percentage of people (about 10%) said: *we don't think your sister's death was really the fault of the automobile, we think it was YOUR fault.*

3. a very large percentage of people (over 80%) said: *your sister's death is proof that automobiles are not safe, and they must immediately be outlawed.... forever.*

The public's reaction to the death of my Aunt Margaret unlocks the secret to accelerating the adoption of new products and innovations. The statements made by the largest number of people indicate that the mass market or mainstream is primarily focused on the question "*what happens if something goes wrong?* "

Despite the circumstances, "Grandpa" gained valuable insight into how the public evaluates new products and innovations. He then used his newly-developed understanding of people and their motivations to accelerate the adoption of new farming techniques, which dramatically boosted agricultural production in Ohio. This mainstream-agricultural adoption of new farming techniques addressed an important humanitarian need at that time….a shortage of food.

> *Although it's not practical as a research tool, you can see and understand the essence of mainstream behavior by watching what happens immediately after a tragedy. The unfiltered reactions of the public are more descriptive and revealing than conventional market research based on surveys or interviews.*

Rather than demanding ultra-high performance, advanced features or stylish design, members of the mainstream delay purchasing until the risk of both purchase and use is very low, and they wait for numerous systems to be established that ensure both low risk and safety.

Confirmed by Studies of Diffusion

These observations by my grandfather, and the conclusions he reached, were later confirmed during his professional career when he became a professor of dairy science at Ohio State University in 1958[1].

[1] see the biographical profile for "C. Dan McGrew" on The Ohio State University, College of Food, Agricultural and Environmental Sciences, *Dairy Science Hall of Service*: https://ansci.osu.edu/about-us/history/dairy-sci-hall-service/1970-1979

My grandfather's colleague at Ohio State -- another relatively new professor named Everett Rogers -- had been studying the way innovations spread by observing the patterns of adoption among farmers. This topic was also the focal-point of my grandfather's career because, as an agricultural extension agent, it was his responsibility to encourage farmers to use new, innovative techniques of farming in order to increase agricultural production.

Most business schools still refer to Everett Rogers and his theory of how and why new ideas and technologies are adopted by a population. In his book called *Diffusion of Innovations*[2], Rogers introduces five main dimensions that influence the adoption of an innovation:

1) Complexity - New ideas that are simple to understand are adopted more rapidly because they reduce the risk that is associated with new learning.

2) Compatibility - An innovation that is incompatible will not be adopted because it represents greater risk.

3) Observability - Visible results prior to purchase lower uncertainty and reduce risk.

4) Trial-ability - An innovation that can be used before purchase represents less risk to the individual who is considering it.

5) Relative advantage - The greater the perceived relative advantage of an innovation, the more rapid its rate of adoption is likely to be.

Notice ***four of the five dimensions above speak directly to the requirement for low risk.***

Low Risk Is the Primary Driver of Mainstream Adoption

Given that 84% of the population looks for ways to avoid risk, it's time for the EV industry to re-orient its strategy and create a solution to overcome the natural hesitancy and avoidance that exists in the mainstream. Here are three examples of mainstream market transformation that were the result of an industry providing a low-risk offering:

Example #1 – The IBM Personal Computer

The "IBM compatible" PC along with its "clone" architecture launched a massive transformation, and the personal computer became a mainstream appliance.

There were dozens of PC manufacturers in the early 1980s (Tandy/Radio Shack, Sinclair, Osborne, Commodore, Altair, Exidy, NorthStar, Heathkit, Atari, Texas Insturments, BBC Micro, NEC, Sharp, and IBM). Several vendors decided to copy IBM's

[2] Rogers, Everett M., *Diffusion of Innovations* (NY: The Free Press of Glencoe, 1962)

PC design and the industry accidentally organized itself around the IBM-compatible standard. The companies that made and sold IBM clones were an overnight success.

The "IBM-compatible PC" included the form factor (ATX, AT), the basic input-output system (BIOS) and an ISA/EISA bus standard. When PC manufacturers adopted this standardized configuration and eliminated the risk of "vendor lock-in," mainstream acceptance soared.

Established electronics companies like Sony and Fujitsu refused to follow the IBM-compatible standard and their PC divisions went straight into the graveyard.

Example #2 – Global Positioning Systems (GPS)

GPS is a satellite-based radio-navigation system that is owned and operated by the U.S. Government as a national resource. The United States government created the system, maintains it, and makes it freely accessible to anyone with a GPS receiver.

The 24th satellite, launched in March 1994 completed the GPS support infrastructure and provided worldwide coverage.

Standard Positioning Service (SPS) is available to all users on a continuous, worldwide basis, free of any direct user charges. The specific capabilities provided by SPS are published in the Global Positioning System Performance Standards and Specifications.

The global GPS Tracking Device Market was estimated to be $1.5 billion in 2016, growing at a compounded annual growth rate of 13.0% between 2017 and 2024.

Example #3 – The PV Pioneer Program (Sacramento, CA)

Sacramento residents signed up in droves for the privilege of putting 4 kW grid-connected photovoltaic (PV) arrays on their roofs, despite the cost of well over $10 per watt. (today the cost is about $2.75 per watt) The program, designed and administered by the local municipal utility, was sold out from the very beginning due to the perception of low risk, which attracted both early- and late-majority members of the mainstream.

SMUD's PV Pioneer Program offered a complete solar solution, that was sold and installed by a known supplier, which makes the buying experience familiar and low risk.

To accelerate mainstream market acceptance, the utility:
- standardized the system (all parts were completely interchangeable)
- subsidized local manufacturing of solar panels to ensure high quality
- offered one size system only
- invested heavily in community outreach and education
- integrated the rooftop solar systems with the existing electrical grid
- trained local solar companies

The impact of a utility or familiar vendor offering a low-risk product makes all the difference. All of the requirements of a risk-averse, mainstream buyer were satisfied.

Success Can Be Confusing

Mainstream buyers in a market wait for: the availability of a standardized product designed to specifically meets their needs, that is made by a leading supplier who sells the product through someone familiar. And despite evidence to the contrary, low price does not exclusively drive market transformation. Cost reduction plays an important role, but it is not the primary driver.

This misunderstanding is especially common in many high-tech industries. Most observers (correctly) watch the cost of a technology drop significantly. But behind the scenes, the real driver of mainstream adoption is a combination of factors that create the perception of low risk.

In reality, there is no guarantee electric vehicles will become mainstream when they cost less than gas-powered vehicles.

Elements of a Low-Risk Recipe

"The low risk recipe" describes the acceptable methods of accelerating change in a mainstream population. Discontinuous innovations such as electric vehicles require a very specific set of attributes in order for the mainstream to accept and then adopt. These proven methods of market transformation have the ability to scale the adoption of electric vehicles, both broadly and rapidly.

The three examples above provide clear guidance for the process of developing a low-risk offering. The fundamental elements that translate into the perception of low risk include:

- a ***standardized*** offering…the exact same product offered by multiple vendors
- a trusted sponsor…an organization or channel of delivery that is well-known and familiar
- universal acceptance…all vendors work to promote and support one thing
- no missing pieces
- no "technology orphans" possible
- inter-vendor compatibility…all components are modular, and plug-and-play

Conclusion

The conventional beliefs surrounding EV adoption focus on a few key factors: reducing the cost and increasing their range, the importance in combating climate change, and favorable government policies or incentives. Yet an examination of the real reasons people adopt new innovations reveals factors and motivations that are very different than what is commonly believed. The formula for encouraging people to make a lasting transition to a clean energy future is based on reducing perceived risk.

Every technology or innovation that is currently in the mainstream got there through the creation of a low-risk offering. Sometimes it was accidental, and sometimes it was on purpose.

For this to happen, the EV industry must make a strategic U-Turn. The current focus on cost reduction, premium features, and government policy must take a back seat to the creation and delivery of a low-risk product that makes mainstream adoption “feel safe.”

This may require key players in the industry to be more collaborative and deliver an undifferentiated product. But that is temporary. Once electric cars have accelerated into the mainstream, all of the EV industry players can go back to competing as usual…and in fact, they must.

The alternative is waiting 50 years for mainstream adoption.