GM-EV1 Electric Vehicle: Story Behind the Story

INSIDER'S VIEW OF WHAT WENT ON BEHIND THE SCENES

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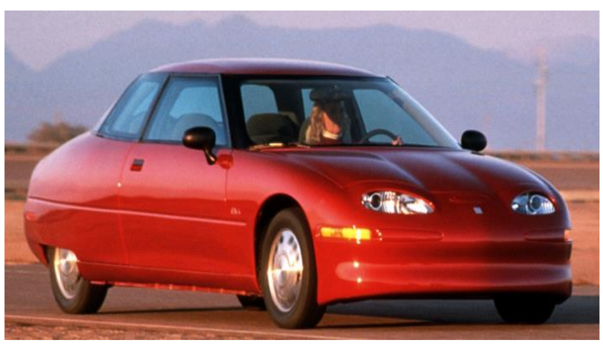

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Cha 1: Background

In 1990, General Motors presented to the public the first modern electric car. The car generated widespread interest worldwide and helped boost GM's image. Despite the positives associated with the car, GM management never seemed to endorse the program. After very limited production by auto company standards, GM pulled the plug. People frequently ask me, "Why was the program stopped?" "What could have been done differently so GM management would have kept the program?" "Did GM killing the EV1 set back development of electric vehicles for a decade or more?"

The questions and discussions about electric vehicles range from informal over drinks and dinner to Q&A following classroom lectures to interviews as part of formal research for a book or academic paper. For example, recently I was contacted by a professor doing research on electric vehicles. He'd been researching EV's for a number of years and contacted me for more possible insight into the late GM EV1 program.

After two lengthy Skype calls, and roughly a day I spent filling in holes in such public information as Wikipedia, his comment was, "I've never heard anyone talk about what you said." Just to calm the EV1 crowd, no confidential information was provided or discussed.

The focus on the "untold story" was the dynamic inside GM that I considered the primary reason GM management never fully supported the EV1. As was published originally as a series of blog entries[1], my belief was the underlying reason for stopping the program had little to do with GM's public claim of lack of demand and excessive cost. True, GM had limited cash but, as will be described herein, much of the cash shortage was self-induced.

As a bit more background, most companies struggle with introducing new technology. Such struggles are well-documented. Two books address the phenomenon of the internal struggles. If you're interested in learning more, start with Jim Utterback's, *Mastering the Dynamics of Innovation*. You'll be shocked at how many companies have tried to introduce a threatening disruptive technology but been unable to do so. To help understand more about why the difficulty, read Clay Christensen's,

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[1] EV-1 series begins entry #346, www.usrevolution5.com

The Innovator's Dilemma. The books have been around a while but I think still relevant and certainly will help build an understanding of the difficulties of transitioning a company from an existing technology to a new, disruptive technology that without adoption could put the existing company out of business.

Before getting into the internal dynamics at GM, let's clear up one gigantic misconception about why the GM EV1, and other electric vehicle models were not pursued. Despite implications in the movie “Who Killed the Electric Car?” from all that I know and experienced – and that was a lot – there was no conspiracy! There was no sinister backroom plot to kill EV's. Yes, auto companies were frustrated with CARB's (California Air Resources Board) zero-emission vehicle mandate.

And, yes, oil companies have repeatedly tried to thwart any regulation or legislation that reduces access to drilling, no matter what the cost to society or the environment. But neither of those killed the electric car.

What did kill the EV1 was dynamics inside GM. The dynamics are rarely, if ever, discussed. To understand how the dynamics evolved we need to review actions inside GM during the decade leading up to the introduction of the EV1 concept car. For many inside GM, those 10 years could have been titled "The Decade of Sour Grapes."

I apologize for the length of this explanation. I still don't know if I’ve explained adequately what occurred inside General Motors and why there was such resistance to the EV1 program among so many executives. Nevertheless, I hope you find this booklet enlightening and hope the decision to kill the EV1 becomes more understandable. You might not like the decision, and I certainly did not, but I think it will be more understandable.

Cha 2: Souring the Grapes Inside GM

In 1980, the position of GM chairman transferred from Thomas A. Murphy to Roger B Smith. Murphy and Smith were polar opposites. Tom Murphy might as well have been from central casting. The quintessential CEO was well spoken, self-confident, witty, kind and considerate. Smith, his successor, was short, insecure, had a ruddy complexion combined with squeaky voice topped off with a tyrannical personality.

After Murphy retired I often thought if you could sit down with him, ask him what decision as chairman he regretted most, after a couple of drinks he might say it was agreeing to appoint Roger Smith as CEO/chairman. After a few years into Smith's reign, I decided Murphy wouldn't need a couple of drinks to make such a comment. A cup of coffee would do.

One of the keys to success for auto OEM's – GM, Honda, Daimler, Ford, etc. – is keeping products up-to-date, including significant styling updates. Keeping products fresh requires enormous amounts of cash. Without product updates, sales decline and the amount of cash available usually declines even faster. Further, once in motion, the effect of the decline can take years, if not a decade or two, to turn around.

As obvious as the sales: cash-generation relationship might seem, Smith took a different view. He believed sales and market share were less important than profit per car. Profit per car is important but without sales, all the fixed cost inherent in the auto industry gets spread over fewer units and the additional cost per unit starts to eat away at even the most profitable car lines. As the sale decline continues the company can be overwhelmed with red ink.

For GM the car divisions were the profit drivers. Virtually all cash generated within GM was associated with sales of cars and trucks. While some individual product lines were marginally profitable, those product lines helped spread the enormous overhead cost.

Forcing each carline to be profitable limited the car division’s opportunity to offer competitive products to help counter the ever increasing number of imports, particularly from Asia. The goal of the imports was to gain market share, and many models were very attractively priced. The Asian companies took a much longer strategic view and were willing to subsidize certain low-profit models sold in the US with profits from carlines sold elsewhere.

Smith's time horizon was much shorter than the Asian-based auto companies. His insistence on profit per car/truck, rather than overall profit, had a devastating effect. For reference, think about a grocery store. In order to attract people to shop, the store has "loss leaders." If the store stops offering such loss leaders, what happens? Profit margins might increase but overall profit will likely decrease as people begin to shop elsewhere.

And the grocery-store phenomenon was what happened to General Motors in the 1980's under Smith's strategy of emphasis on profit-per-car/truck rather than sales. People stopped coming into GM dealerships and started shopping elsewhere.

How bad was the strategy? Over the decade of the 1980's GM market share of all cars/light-trucks sold in the US declined from roughly 45% to 35% -- a relative decline of about 25%. What did that mean in terms of unit sales? During the 1980's, the US averaged about 13-15 million cars and light-duty trucks per year. The 10 points lost by GM (45% to 35%) equated to sales of 1.3-1.5 million cars and trucks per year.

What did that mean for employment? 1.3-1.5 million cars and trucks per year equates to roughly five (5) assembly plants. Thus, Smith's strategy resulted in unemployment for everyone who worked at those five assembly plants and unemployment for thousands more at GM suppliers. In addition, GM made huge cuts in white-collar staff. (Yes, I understand there is another discussion that needs to take place about which auto companies gained share that GM lost. However, that conversation is not relevant to the dynamics inside GM that affected the EV1 program.)

Did GM profit improve under Smith's strategy? In terms of earnings, if each car averaged say $2,000 variable profit (a reasonable estimate), then GM lost market share during the 1980’s reduced potential GM earnings over the 10-year period by at least $15-$20 billion. (Roughly $30-$40 billion in $2019.) In addition, GM profit margin declined as did overall profits. If you were the teacher grading Smith’s performance, a grade of “D-“would be extremely generous.

In addition to a strategy that generated lower profits and less cash, Smith directed GM to purchase Hughes Electronics, to purchase Electronic Data Systems (EDS) and to start the Saturn division. Where did the cash come from for these ventures? Funds from an ever smaller piggy bank that should have been allocated to help car and truck divisions maintain competitiveness were instead diverted to Smith's various projects. As such, the divisions – Chevrolet, Buick and others – had even less money to update new products and less money for marketing. Of the GM car and truck divisions, only Buick managed to maintain market share during Smith's reign.

The purchase of EDS created another problem. With the purchase of EDS, Ross Perot became GM's largest single shareholder and member of the Board. Perot asked many thorny questions during GM board meetings which irritated Smith. Perot irritated Smith so much he ordered GM to buy back all of Perot's stock – for $750,000,000. (About $1.5 billion $2019.)

Where did the $750 million cash come from to repurchase Perot's stock? Again, funds diverted from the car divisions that should have been used for product development and marketing.

Another major diversion of cash went to the creation of Saturn division. Smith created Saturn because he believed the existing car divisions were incapable of attracting younger buyers. Smith's attitude angered many senior executives at the car divisions.

To make a bad situation worse, Smith insisted Saturn should be set up as a completely separate car company, even to the point where Saturn had a separate foundry to cast engine blocks. Such vertical integration was ridiculous. No one, and I mean no one, cares which supplier casts a particular engine block as long as it meets quality standards.

In addition to diverting funds to set up Saturn as an operating unit, Saturn never made money. The longer Saturn stayed in business the more the other car/truck divisions suffered as funds were diverted from product development and marketing programs to prop up Saturn. (Smith's negative impact on GM did not stop when he left office. The decline in GM share became almost impossible to stop because the product competitiveness of the divisions had fallen so far behind. As noted later, in my view GM's eventual bankruptcy should be attributed directly to Smith.)

Hope you're beginning to get an understanding of frustration among executives at the car and truck divisions. Hard to believe, I know, but there's more background we need to cover. You mean like why Smith cast aside the organizational structure that had made GM hugely profitable for decades? Yes. And when the reorganization happened, Alfred P. Sloan likely rolled over in his grave?

Cha 3: Reorganization for What?

On top of the array of his decisions to divert cash from developing and marketing new products, GM CEO Roger Smith hired McKinsey & Company (consulting company) to study and determine if GM should be reorganized, allegedly to streamline operations.

As someone trained in finance, I agree that some improvements in operations likely were needed. At the same time, those improvements could have been accomplished without a reorganization. Just for some perspective on relative size of GM at the time, Buick Motor Division generated more revenue than the worldwide operations of the entire Goodyear Tire & Rubber Co. Chevrolet Division was more than two times the size of Buick. In addition, under the then current organization structure, GM had been extremely profitable for decades. So why would anyone want to reorganize?

When I was interviewed by McKinsey for the study, it was clear from the questions that Smith already had decided to reorganize the corporation. The McKinsey-led study was a sham and used as a front to justify Smith's decision. The reorganization, or so we were told, would streamline product development and eliminate redundant cost.

Not part of the study was the calculating the value to GM of "organizational loyalty." Smith never spent time on the revenue side with a US operating division -- Chevrolet, Cadillac, etc. If he had spent time, he might have understood how most employees felt about "their" division. Many people at Buick, for example, whether in field sales or on the assembly line, considered themselves part of the "Buick family."

At the time of the "study" Buick had been operating in Flint, MI for more than 75 years. Many workers were 3rd, even 4th generation employees of Buick. Same type of history existed with many hourly and salaried employees at Chevrolet, Pontiac, Oldsmobile, Cadillac and GMC Truck.

For many of the same workers, even though their respective operating division was part of General Motors, the other GM divisions were viewed as competitors. Oldsmobile was considered a competitor by many people at Buick and vice versa. While this might seem a bit unusual to many outside GM, I personally believe the sense of loyalty to a particular operating division was one of GM's strengths.

The reorganization, which ignored the "emotional bond to the division" of the various employees, created two major operating groups – CPC, which consisted of Chevrolet, Pontiac and GM of Canada – and BOC, which consisted of Buick, Oldsmobile and Cadillac. In addition to now being grouped with a former competitor – Buick and Oldsmobile, e.g. -- the name of the group, "BOC" changed the alignment of the two divisions in the marketplace.

Since the 1920's, Buick had been positioned in the GM hierarchy as a step up from Oldsmobile. Yet, the BOC name implied a new market pecking order, with Buick a step below Oldsmobile. The change in order was not well received inside Buick or by its dealers.

Another example of the people driving the reorganization being incredibly tone-deaf was the names initially assigned to the "manufacturing-related" groups within BOC. Names for these groups apparently were chosen by people who never worked in communications or marketing. Or, if they had worked in these areas, the names were assigned in an effort to thumb their nose at Smith et al responsible for the reorganization.

The initial names for the groups were etched on large metal signs and installed at the respective HQ buildings. The morning after the installation I saw the sign driving into Buick's office. The sign noted the Flint Automotive Group would be co-located in the Buick HQ building. At Oldsmobile, I assume there was a sign indicating the Lansing Automotive Group would be co-located at Oldsmobile's HQ.

After a quick chuckle and a head shake, I asked someone in the Flint Automotive Group if anyone had considered the initials of the group – "FAG". The Lansing Automotive Group initials were "LAG". Apparently no one had considered the initials. After the inquiry, the names were quickly changed but another example of someone making decisions but not paying attention to anything other than what was considered a possible cost savings.

The inept "non-financial"-related decisions -- group alignment, group names, sub-group names, etc. – never set well with most employees and the ill-will towards Smith continued at least into the 1990's, past the announcement of the EV1.

As if Smith diverting huge amounts of cash to non-core projects were not bad enough, Smith was a control freak. Smith seemed to have to make all key decisions, even if he knew little or nothing about the topic. An example was when Buick sought approval for the introductory MSRP of the Reatta, a 2-passenger near-luxury car.

Buick had completed extensive research about consumer expectations for the MSRP. Two results of two different research methodologies suggested a price of less than $20,000 ($1985). The research also indicated a price above $20,000 was a psychological barrier and would reduce sales potential significantly.

Buick presented the research findings and the ~$19,950 MSRP to the GM Price Review Group, whose members consisted of various senior executives, including Smith. While we were making the presentation and discussing the findings of the research, Smith interrupted the presentation and stated, "The MSRP is going to be $25,000. Next item on the agenda." The discussion ended.

Soon thereafter the Reatta was introduced with a MSRP of about $25,000. What happened? The Reatta had great visual appeal and consumer interest, but sales never achieved potential. Why? Rather than argue about the correct MSRP, a better indicator of value is to look at prices in the used-car market.

The used-car market sets prices on what customers will pay, not what a manufacturer claims the price should be. A year or so after introduction, if one applied the traditional depreciation schedule to the Reatta, the introductory MSRP should have been about $20,000 (just what the research indicated and what Buick proposed), and not Smith's demand of $25,000. The result? Smith's arbitrary "seat-of-the-pants" 25% premium on the Reatta basically killed the program…and with it GM lost another opportunity to build market share and make money.

Buick was not alone in being subjected to Smith's arbitrary decisions. All divisions suffered. I'm just not as familiar with some of the details since I was focused on activities at Buick.

Cha 4: EV-1's Development and Debut

With no love lost for Smith among a wide swath of GM executives, along comes the GM electric vehicle, the EV1. To add a little salt to wounds inflicted by Smith, how did the EV1 concept car get developed? Through GM Design Staff? Developed in conjunction with an operating division? No, the EV1 was developed in secret by a company located in southern California, called AeroVironment.

How were GM executive introduced to the EV1 concept car? Showings at the GM Tech Center? An in-house video? No. The executives found out when the EV1 (working name "Impact" at the time) was introduced at the 1990 Los Angeles Auto Show. The introduction in Los Angeles also included Smith's surprise proclamation that GM would put the EV1 in production.

Just think about what's happened the decade preceding the surprise introduction of the EV1. Smith's decisions included diverting cash to: (i) buy Hughes Electronics; (ii) buy Electronic Data Systems (EDS); (iii) buy back all the stock owned by Ross Perot as part of the EDS purchase, (iv) start yet another GM division, Saturn, which then never made money; (v) reorganize a company that had essentially printed money since the early 1920's; (vi) arbitrarily price vehicles (I've spared you other stories about how Smith put the kibosh on breakthrough advertising and marketing ideas at Buick); (vii) focus on profit per car rather than market share.

As a reminder, the effect of these decisions was hugely negative. During Smith's reign in the 1980's, GM lost 10 points of market share – equal to five (5) assembly plants. Plus, GM laid off tens of thousands of employees. Some of the supposed cost savings from these plant closings were never realized as many hourly employees continued to receive full pay even though not working. The net result of Smith's actions was a loss of tens of billions of dollars profit and a drain of cash for future product development and marketing. And now Smith develops an electric car in secret and the first time most executives became aware of the EV1 and the commitment to produce was the media coverage of the LA Auto Show.

So if anyone wonders what attitude executives in the operating divisions had toward the EV1, now you know why there was little, if any support at the beginning of the program. The lack of support eroded as the program continued and GM continued to lose share and cash.

Cha 5: You're My Worst Enemy!

In-house development of GM EV-1 begins. Soon after Smith's announcement at the LA Auto Show, the EV-1 program kicked-off inside GM. The program manager was selected and then initial staff members recruited from different divisions. Additional staff was added as the program progressed. The EV-1 program was headquartered in the Advanced Engineering Building at the GM Tech Center. Being housed in the Advanced Engineering Building reinforced the impression, both inside and outside GM, that an Innovative product was being developed.

Another decision was to not assign the EV-1 to an operating division -- Chevrolet, Oldsmobile, etc. On the plus side, not selecting a "division home" helped avoid the EV1 being pushed aside by the designated division and having EV1 resources diverted for near-term marketing activities. On the negative side, not selecting a "division home" reinforced the perception among many operating division executives that the EV-1 was part of Smith's portfolio of projects that diverted cash from critical product development and marketing programs, which in turn, caused GM to lose market share.

What Else Went Wrong? One of the benefits of hindsight is the opportunity to ask, "What went wrong during the EV-1 program?" And then ask, "What did I do or not do that might have contributed to what went wrong?"

Over the past 20 years or so, I've been asked to discuss various aspects of the EV1 in different forums -- public presentations, media interviews, guest lecturer at a university, even a movie. With each one of these "events," I've tried to assess how different decisions might have affected the outcome of the program, both positively and negatively.

This booklet stemmed from an attempt to analyze the "non-product" side of different activities. As stated repeatedly in the various forums, I believe the technical limitations of the EV-1—limited range, 2-passenger seating capacity, e.g. – were not the underlying causes for GM pulling the plug on the EV1. Some of the technical limitations have been used as excuses, but were not really the causes.

What were the causes? Before pointing fingers at others, it's always a good idea to first look in the mirror. Most of my role at EV-1 the project was to help manage a team that focused on educating groups outside GM. The groups ranged from utilities to fire-and-rescue organizations to Federal and state-government officials to the media to the general public. While most of the efforts were in the US, we also met with officials in Europe.

The efforts of the team were incredibly successful. Even though our marketing and promotion budget was a mere fraction (and small “mere” at that) of budgets at the operating divisions, the team's efforts, as measured by the amount of media coverage, resulted in a significant increase in the public's awareness of electric vehicles and a significant increase in positive perception of General Motors.

If memory serves correctly, over a roughly three-year period, the EV-1 program generated more positive publicity for GM than the rest of the company combined. So with such a positive track record, what could have been done differently? Frankly, what did not occur to me at the time, and I don't recall anyone else discussing this either, was the need to present to the operating divisions -- Chevrolet, Buick, etc. -- the same type of educational program about the EV-1 as we presented to outside groups.

While many staffers on the EV-1 program had been in the divisions that suffered because of cash diversions to fund Smith's projects, I'm not sure any of us fully appreciated how negatively our former colleagues at the operating divisions viewed the EV-1 program. We were all enamored with the idea of an electric vehicle and assumed everyone else inside GM was equally excited.

Clearly not everyone was. An example was a return to my former division, Buick. After working many years helping position Buick for the future, I thought the EV-1 would be a perfect fit for Buick and its dealers, many of whom I knew personally. My thinking was the EV-1 could attract younger buyers to Buick, give dealers a sporty model in the showroom to attract new floor traffic and allow Buick to leverage interest in EV-1 among younger people to help build long-term brand loyalty. My rationale, however, fell on deaf ears when presented to the Buick general manager. Buick was not interested in any association with the EV-1.

Buick and the other operating divisions were not alone in poo-pooing the EV-1. Somehow, we managed to get on the "Do Not Call List" for a number of GM staffs. Part of the conflict stemmed from assigned responsibilities. For example, EV-1 was the only group outside of the corporate staff to have responsibility for "government relations". While our dealings with the government were restricted to topics associated with electric vehicles, we were allowed to approach legislators, government agencies and staff without first seeking approval of the corporate "government-relations" staff.

To me the limited scope of our government-relations activities made perfect sense. If a goal of the EV-1 program was for those in government to understand requirements for a successful introduction of electric vehicles, then the group charged with the introduction should be making contacts with various government entities. In my view we were judicious in our approach and diligent about keeping the corporate staff informed of our activities.

Were we successful? Like the group's efforts in educating the public about electric vehicles, I think we did a good job educating legislators, legislative staff and a number of agencies. We also worked with other auto companies to ensure there was a consistent message to government about how it could help support the development and introduction of electric vehicles.

So what could go wrong? Let's start with the relationship with the corporate government relations staff. I can state categorically there was no intent on our part to have the relationship go sideways...but it did.

Scene: Executive dining room at the GM Technical Center. Table for two. At the table are GM's chief environmental lobbyist and me. Part way through lunch the other GM executive (I'm withholding the name intentionally) leans over the table and says, "Dabels, you're my worst enemy!" My response, "How can that be? We work for the same company." His retort, "You're my worst enemy because my job is to convince Federal and state legislators there's no demand for electric vehicles and you're out there proving me wrong."

The conversation continued, rather politely, but without resolution. The lack of resolution stemmed from our instructions. He was to promote a corporate policy that was in direct conflict with the policy the GM EV-1 group was to promote. We finished lunch and then left to carry out our respective instructions.

Inconsistent internal policies within GM were not uncommon. Another rift, discussed in more detail in the next chapter, was how key executives of the GM financial staff viewed the EV-1 as a cost center, and not a marketing opportunity. Focusing only on cost created an environment where the financial staff placed no value on improved corporate image, no value on increased future buyer potential, no value on brand loyalty, and no value on myriad other non-product attributes that often differentiate one brand from another and can lead to higher market share and earnings.

How did the “cost-center” view affect the EV-1 program? My view is supporters of the cost-center perspective ended up killing the program. The next chapters provides some insight.

Cha 6: “EV-1’s Wasting Precious Cash!” or So They Claimed

There was a dichotomy on the GM EV-1 program. The public, the media and most government organizations viewed very positively GM's efforts to develop and introduce an electric vehicle. As noted, inside GM, the view was just the opposite. Many GM executives intensely disliked the EV-1 program and considered it a waste of scarce funds.

An example of the public support was the number of people who contacted the program seeking information. When the program kicked off, there was no internet. Hard to imagine now but true, no internet. The primary contact was via an 800# and some contact by fax and snail mail. The 800# was staffed by a firm which I had used at Buick.

The firm kept a record of every contact. If you were a first-time caller, you also received a response letter written on executive stationery, which I hand-signed with a fountain pen. If I knew anything about the location or something else that might be of interest to the recipient, I wrote a short note in the margin.

Over roughly a two-year period, I signed about 25,000 letters. It was not uncommon to return from a week-long business trip and have a stack of 300-400 letters delivered to the house waiting for me to sign.

Did this letter writing effort have an impact? For maybe 10 years after the program, I would be introduced to someone who would say, "Oh, I know you." I would ask how they knew me since we were just introduced. "You wrote me a letter." Then often as not, the person would reach into the desk and retrieve the letter.

Most people seemed to retain the EV-1 brochure, which was sent along with the letter. Like many efforts on the program, we broke the mold for what was considered a standard car brochure. The advertising manager on EV-1 was Amy Rader, a history major from Princeton, with far less automotive experience than other ad managers. Amy thought we should have a different kind of brochure. She managed to convince the Robert Frost Foundation to allow EV-1 to be the first commercial use of his works. The EV-1 catalog, of course, was also printed on recycled paper.

Contact with the EV-1 group was not limited to the United States. One day we received a package from a group of high school students in Bulgaria. Somehow they'd heard about the program (remember pre-internet) and completed a class assignment centered on the EV-1. When finished with the assignment they sent us a copy.

Unfortunately, the widespread interest in EV-1 fell on deaf ears inside GM. As noted, but worth repeating, part of the cause was frustration among many GM executives with 1980's chairman Roger Smith diversion of cash from product development and marketing programs. Another problem was how the car was designed and the concept car produced. Rather than using GM Design Staff, Smith had EV-1 developed in secret by a company in California. He then added icing to the cake with the surprise introduction at the LA Auto Show and the statement GM would produce EV-1.

Just to be fair, while Roger Smith's follies festered frustration and anger toward EV-1, he’s not the only villain. Some of us on EV-1 need to take some blame as well. We could have done a better job trying to convey the value of EV-1 to executives inside GM.

While such an education program might have helped, I’m not sure the effort could have saved the program. With the benefit of hindsight, the death knell of the EV-1 program seems to have been the view by the financial staff that EV-1 was nothing more than a cost center. As someone who cut his teeth on the GM financial staff, I can sort of understand that view. At the same time, I've been baffled by the unwillingness of the financial staff to consider how much non-product value that EV-1 generated for GM. No other product program since at least WWII had such a positive impact on GM image.

The "cost-center" only view may have been a cover for at least two other actions. The first was that GM kept claiming most, if not all development cost associated with EV-1, had no other application. Yet, as EV-1 was being developed, elsewhere in GM there were efforts to incorporate many features of EV-1 into regular production vehicles. If one were to track incorporation of electronics into regular production cars/trucks, there was a huge jump soon after EV-1. I like to remind people that even though GM eventually cancelled EV-1, one the major benefits of the program was accelerating the use of electronics in vehicles.

The acceleration of electronics should have been fully supported by the financial staff…but it wasn't. At the time of EV-1, many electronic features carried a price premium. Yet, the incremental cost to produce many electronic features was almost nothing. With the opportunity to use electronics to increase profit margins on most every car and truck, why was the financial staff so emphatic that EV-1 was only a cost center?

The second reason for the "cost-center" claim is more sinister and one I've never heard discussed publicly. I reached the more sinister conclusion based on: (i) early training to be an actuary, which includes trying to find patterns out of seemingly random events; (ii) studying the history of General Motors (If you want insight GM became a manufacturing and financial powerhouse, read "My Years with General Motors," by Alfred P. Sloan. I found it absolutely fascinating.); (iii) having worked with most of the financial executives involved.

Cha 7: Conspiracy Inside GM?

My sinister view is the EV-1 happened to be a convenient mechanism for implementing a conspiracy by the financial staff. A conspiracy by the financial staff is unlike the conspiracy implied in the movie "Who Killed the Electric Car?" The movie suggests a conspiracy among various car companies and other organizations associated with electric vehicles. As noted in an earlier entry, I think the multi-organization conspiracy theory presented in the movie is simply not true.

Ok, then what was the conspiracy inside GM led by the financial staff? And why?

Higher-level finance executives knew that actions during Roger Smith's reign had seriously eroded GM's earning power. Some erosion had been hidden by a number of accounting changes. With that understanding, finance executives knew the next GM chairman would have a very rough time trying to stabilize the company and even more difficulty trying to rebuild earnings.

GM had a long tradition of the chairman coming from the financial staff and the president coming from operations. So here are my questions. Who was chosen to succeed Roger B. Smith as chairman? A financial guy? No, a guy from the operating side. Who was chosen to be president? An operating guy? No, a financial guy. Seems a bit odd, huh? Maybe a bit Machiavellian?

Robert Stempel, who was chosen as chairman to replace Roger Smith, was the quintessential engineer. Stempel had a stellar track record in operating roles at Pontiac and Chevrolet but no in-depth exposure to or understanding of finance. No surprise that Stempel was a big supporter of EV-1 since much of his career involved new product development.

The new president, Jack Smith (no relation to Roger Smith) was the quintessential finance guy with almost no experience in US operations that would help him understand how the operating divisions and the supporting dealer organization worked in concert. An example – during a meeting I mentioned EV-1 was generating a high level of interest among teenagers. Smith replied, "15 year-olds don't buy cars!" True, but just from a pure economic standpoint that 15 year-old will likely purchase at least 10 cars/trucks in his or her lifetime, and probably more. Why not work to build a positive image with the 15 year-old? Who doesn't remember which brand cars/trucks were "cool" when they were that age?

So, was there really a conspiracy? Was there really a coup d’état at GM? Did the senior financial executives setup Stempel, knowing GM earnings would be rocky the first few years post Roger Smith? If Stempel demonstrated he was unable to stabilize GM, wouldn’t the financial staff be justified asking the Board to replace Stempel with a traditional finance guy in order to “save” the company?

Stempel faced another potential problem, which the finance guys were well aware of. In the late 1980's US economic growth started to slow. As GDP and personal income declined, even without a formal recession, car sales would likely decline. GM profits would also fall.

The predictions proved true. Economic activity slowed and GM earnings declined. While Stempel continued support for the EV-1, the slower economy forced GM into a difficult choice. The loss of market share during Roger Smith's reign meant fewer vehicles to cover fix cost. Plus, the diversion of cash for Smith's various projects meant GM had no cash reserve.

GM needed to cut costs and few alternatives were available. Product programs and marketing programs at the car divisions had already been raided to fund Roger Smith's various projects. Closing Saturn, even though it was bleeding cash, likely would have been a PR disaster.

What was on the cutting table, at least from the financial staff's perspective, included the EV-1 program. I agree and understand that sometimes immediate needs for cash can overtake future considerations, even if the long-term consequence may be negative. However, cutting EV-1 made little economic sense. The cash burn rate was not that great. Much of the development could be applied to and increase profits of other GM cars/trucks. Plus, EV-1 was GM's only bright spot. Even with all the other problems inside the company, GM's public image continued to improve because of EV-1.

Cha 8: The Day the Music Died

Unfortunately, all the pluses stemming from EV-1 could not save it. The ending of the EV-1 is both sad and happy.

Sad because the EV-1 met an untimely and ugly death. Happy because many things were learned from the EV-1 program and the program has continued to this day to influence development of electric vehicles worldwide. The demand for and availability of electric vehicles has continued to grow. Even such storied brands as Porsche are introducing electric vehicles.

The EV-1 set the standard for electric vehicles, both in terms of technology innovation as well as quickly building an emotional bond with a wide swath of people. It truly bothers me to say this, but I think the auto company that so far has best captured the spirit EV-1 brought to electric vehicles has been Tesla and not General Motors.

To finish the EV-1 story, let's start at the end and work backwards to the day the music really died. The formal death of EV-1 was in 2002. The formal death included an orderly return to GM of all EV-1's that were on lease to customers, mostly in California.

The EV-1's were only leased and not sold. Why only leased? Keep in mind the EV-1's were still "experimental" by auto industry standards. Even though the EV-1's were fully functional and met all federal safety standards, a number of items on the car had not been tested as thoroughly as most regular production models.

Leasing also allowed GM to restrict use of the cars to certain areas – initially California and later some parts of Arizona and Georgia. Leasing enabled GM to avoid what would have become a logistics nightmare. When title to a car/light-duty is transferred from the auto manufacturer to the buyer, the auto company becomes liable for providing parts and service for at least 10 years, in some states the requirement is longer.

In addition, if the owner moves from say California to Vermont, the auto company must provide service at an authorized dealership. For the EV-1 that meant possibly training dealer technicians or providing direct service in many locations throughout the country where there might be only a few EV-1's in use.

While cancelling the EV-1 program was a strategic blunder, what GM did afterwards may be one of the greatest PR blunders in automotive history. After the program was canceled, remaining leases were not renewed and all EV-1's had to be returned to GM.

So far, so good. But then what did GM do with the cars? GM crushes all but a few EV-1's, which were donated to museums and universities but with the driveline disabled.

The giant PR mistake consisted of two components. The first mistake? With a minimal amount of effort and cost GM could have updated the cars and re-leased the EV-1's. Doing so would have allowed GM to continue to gather customer data and maintain a positive public image about developing electric cars.

The second mistake? How the cars were disposed of. Rather than explaining to the public why the cars needed to be crushed, GM tried to keep the crushing a secret. Hard to do with that many cars and hard to do when car crushers are usually located in open areas with no trees or other cover.

You'd think someone in GM might have remembered a previous PR fiasco, but apparently not. In the 1960's (many people from that era had not yet retired from GM) there was a huge public outcry against GM with the disclosure GM had hired a private detective to tail Ralph Nader after he published the book, "Unsafe at Any Speed." The book was critical of the safety of the Chevrolet Corvair. I guess reviewing company history and lessons learned was not part of the discussion whether to crush EV -1's.

What happened to GM's image after the public found out about the crushing? Almost overnight GM's image went from good guy trying to help the environment to bad guy. Out the window went all the positive gain in GM's image that started when the EV-1 was introduced. In fact, GM's image slipped from positive to negative.

The public outcry over the GM crushing EV-1's helped spawn the movie, "Who Killed the Electric Car?" Given the seemingly esoteric topic, the movie was remarkably popular. When it premiered in Charlotte, I was invited to attend. Following the movie, there was a spirited Q&A session that lasted almost an hour. The popularity of the movie helped erode GM's image further.

But did the EV-1 really die when the cars were crushed? Or, did the EV-1 program suffer a mortal wound sometime before? A wound that would lead to its death? From my perspective, the real death of the EV-1 was in late 1992, years before the public demise. In an earlier chapter, I described how the GM financial staff viewed the EV-1 as a cost center.

I understand the following is a bit of a repeat. However, if one is to understand what really killed EV-1, then it seems appropriate to one more time: (i) state the financial staff viewed the EV-1 as a cost center; (ii) raise a question whether there was a conspiracy among financial executives to set up, then justify replacing Chairman Robert Stempel, who had succeeded Roger Smith.

Smith's actions has so drained corporate earning power and cash reserves that whoever was appointed chairman would be faced with the need to cut expenditures. And that's the problem Stempel faced. But where to cut? The financial staff continued its drumbeat that all costs associated with EV-1 were of no value elsewhere in the company, despite evidence to the contrary.

So was the EV-1 program affected as GM looked for cash? Let's take a closer look. Time fame: Fall 1992. Meeting location: General Motors Building, Detroit, conference room near the boardroom. Start time, 3:00 p.m. Corporate attendees at the EV-1 status review: chairman, president and two senior financial-staff executives. Representing EV-1 are four executives, including me.

Meeting content includes an update of engineering developments, review of marketing programs, and review of program cost. During the meeting, the chairman takes notes and asks a number of questions. The president takes no notes and does not ask a single question.

At precisely 5:00 p.m., the president stands, turns to the chairman and states, "Bob (Stempel), you can't afford the program." The president then excuses himself and leaves the meeting. The meeting concludes shortly thereafter.

After the internal review but before the next meeting of the Board, usually the first Monday of the month, Bob Stempel resigned as chairman and retired from GM. Soon thereafter the Board announced that Jack Smith would be promoted from president to the CEO's role. The chairman's role was assigned to an outside Board member.

The Board also approved a significant cutback in staff throughout the company as well as a cutback funding for certain product programs, including the GM EV-1. All the cutbacks, including funding for the EV-1, seems consistent with the idea that Stempel had been set up as the fall guy before someone from the financial staff could ride in on a white horse and save the company.

Oh, I almost forgot. What date did the Board formally approve cutting back on the EV-1 program? An action that in my opinion effectively killed the momentum of the only program which was improving GM's image; a program which had the potential to attract to GM younger buyers who were more prone at the time to buy Imports, especially Japanese models. What was the date the Board inflicted a mortal wound on the EV-1 program? None other than December 7th.

OK, so the Board missed the irony of the date of their decision. Not having been privy to the discussion in the Board room, one has to wonder how objective the presentation was about the EV-1 program. Given the negative attitude toward EV-1 of the incoming CEO and his former colleagues on the financial staff, which usually coordinated presentations to the Board (a job I held for a while), I have serious doubts many of the positive aspects of the EV-1 program were presented.

Cha 9: All Is Not Lost. Spirit of EV-1 Lives On.

But all connected with EV-1 program has not been lost. A number of positive aspects of the program seem relevant today. For me, probably the biggest takeaway has been how a small group of people with such a limited budget could build such a huge following and have such a lasting impact. By traditional automotive standards, the size of the individual staffs, amount of the engineering budget, amount of the marketing budget and other support was tiny.

By almost any measure, we were also an eclectic group – some staff members had lots of auto experience; some had almost none. Yet, collectively we became a highly effective team that had a major positive impact on GM's image and set the standard for a new generation of electric vehicles.

GM senior management's failure to realize the positive benefits of the program, especially how EV-1 improved GM's image among younger generations, was an indication then and now that GM senior management was too focused on costs and not focused on generating revenue. The concept of a company trying to cut costs and "save its way into prosperity" never works. Such an approach often is a path to bankruptcy.

The focus of senior management on cost savings and not revenue generation also alienated a number of younger, more innovative-thinking executives inside the company. Many of these innovators left GM. Their departure left GM with far fewer executives willing to take risks and try new ideas, just at the very time GM needed this kind of thinking.

The combination of focusing on cost and avoiding any kind of risk taking proved devastating. GM's loss of market share that started in the 1980's because of actions by then chairman Roger Smith continued throughout the 1990's. By the time GM finally declared bankruptcy in 2008, GM's share of cars/light-duty trucks sold in the US had fallen from about 45.0% in 1980 to less than 25.0% and was headed toward 20.0%. In say 2006, had GM maintained the share it held in 1980, GM would have sold an additional 3,500,000 cars and trucks in the US.

Could EV-1 have saved GM from bankruptcy? As a car program, no. Annual EV-1 volume was too small to offset declines in other carlines. However, the spirit, enthusiasm and innovation that was generated by the EV-1 program could have been the catalyst to change thinking inside the company and stop the slide in market share. Only years after the EV-1 program was cancelled, did Rick Wagoner (another financial guy), who succeeded Jack Smith as chairman, admit cancelling EV-1 was a major mistake.

Another major irony of the program? EV-1 could have been Roger Smith's best idea to help change thinking inside GM. EV-1 could have been Smith's legacy. But it wasn't. Unfortunately for Smith, and GM, this great idea was preceded by actions that did irreparable harm to GM.

So, now you have another side of the GM EV-1 story. While writing these entries I was reminded of the opening words to Don McLean's most famous ballad, "American Pie."

> "A long, long time ago
> I can still remember how that music
> Used to make me smile
> And I knew if I had my chance
> That I could make those people dance
> And maybe they'd be happy for a while
> But February made me shiver
> With every paper I'd deliver
> Bad news on the doorstep
> I couldn't take one more step
> I can't remember if I cried when I
> Read about his widowed bride
> But something touched me deep inside
> The day the music died."

Hope you found this booklet of interest. Comments welcome, as always.

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About the Author. Mr. Dabels' role on the EV-1 program can best be described as trying to develop demand for electric vehicles worldwide. Staffs/functions directly supporting that activity included providing prospective user input for product development, helping educate and develop relations with prospective customers, whether individual consumers, utilities, government agencies or fleets/rental car companies. Activities included helping manage such activities as advertising, market research, government relations, media relations, etc. Prior assignments at GM included marketing and new product development at Buick, GM Treasurer's Office (New York) and financial staff at Cadillac Division. Mr. Dabels is a graduate of Drake University and the Massachusetts Institute of Technology. More at: www.linkedin.com/in/johndabels.