

Fueling Innovation in Dispenser Design: How Industrial Design Methodology can Change the Face of Forecourts

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When did purchases of refrigerators and toasters come to depend largely on how well they would look in the kitchen? From mobile phones to washing machines, industrial design has become a pervasive element in almost every consumer and industrial product with which we engage on a daily basis. So why should fuel dispensers be any different?

It's true that many motorists are simply looking to pull into a station, fill up, and get out, but this doesn't change the notion that the fuel dispenser is the welcome mat to any convenience store. If the fueling experience is quick, clean, and better than the location across the street, the stage has been set for an in-store sale and possible repeat business. This is when a fuel dispenser design centered on human interaction can be a powerful c-store business tool.

But the industrial design process of evolving a utilitarian product like a fuel dispenser into something friendly, approachable, and intuitive involves more than simply adding a few curves and pretty paint. It is a process balanced between art and science, vision and method. Careful thought goes into achieving the desired balance on a dispenser design that could be, and should be, applied to other equipment on a forecourt.

1. Define your design scope. Does the product line require a refresh or a complete overhaul? Perhaps it's easy to service, but not ergonomic or intuitive for the end customer. Maybe the transaction flow is good, but the product itself needs more curb appeal.

In addition, which geographical markets and user bases will the design serve? Will the design center on the needs of North American regions, Asia Pacific, or the globe? Who should reap the benefits of the design? Is it the fueling motorist, service technician, or station manager? Perhaps it's all of the above? Understanding what needs to change and for whom is crucial to focusing the subsequent field research; it helps determine who needs to be polled and observed and where to gather that information.

Using the Wayne Helix™ family of fuel dispensers as an example, the design approach considered the entire life-cycle of a dispenser. The focus was global, with intent to replace several products based on a 20-year old, monolithic design with a single line of dispensers that are easier to use and service. That's a tall order, with success dependent on comprehensive product research.



2. Research real-world product usage. To understand how a design can be improved, real customers must be polled. This may be as simple as a focus group interview, or it may require a trip to the "field" to observe the product under real-world conditions and usage. Interviews and observations should be centered on customer types and applicable regions defined by your scope. If the goal of the design is improved serviceability, then technicians should be observed servicing the product; they should be interviewed without bias and given opportunity to share what they both like and hate about maintaining, troubleshooting, and repairing the product.

Interviews and observations should also be conducted in as many regions and areas as defined by the scope as possible. This research helps identify usage patterns and habits across locations that may or may not be compatible from a design perspective.

Using the Helix family of dispensers as an example, since Brazil is a full-service market, motorists hardly ever exit their vehicle for fueling purposes. Unit price and sales-volume displays therefore need to be large and clearly readable from inside a vehicle. But displays that are easier to read in both night and bright day conditions will also benefit customers in self-service regions. These compatible requirements from very different countries are the driving factors behind the move to high-contrast, white-on-black displays in Helix fuel dispensers.

We also learned through interviews that safety and cleanliness were important dispenser qualities for the end-customer. We therefore designed Helix dispensers to ensure personal security through improved visibility over, around, and through the pump, as well as a recessed, angled PIN pad that helps increase

user privacy. The design also helps to conceal hoses, dirt and fuel, drawing user focus to branded areas and the payment terminal, presenting a “cleaner” look.

As you might guess, station owners also had opinions about the look and feel of the dispenser. Their priorities focused on both user interface (the up-close design) and the architectural design (how the dispenser looks from the road). In an effort to catch the driver’s eye, we designed Helix to have a slim, attention-getting profile that would appeal to motorists. We also gave Helix a high, angled valance that offers station owners better branding options to target customers. At the same time, the streamlined, refined profile gives station attendants a better view of the forecourt.

Focus on the "user" experience is key. Capturing unbiased, uninfluenced feedback sometimes requires remote observation rather than direct questioning. There is much to learn from watching a fueling customer exit their vehicle and begin to engage products on the forecourt. When it came to fuel dispensers the following questions came to mind: do they immediately know where to insert their payment card or even how to initiate the sale? Do they look confused or frustrated during pre-dispensing transaction steps? Can they easily remove the nozzle? How do the hoses move as the nozzle is manipulated? Where is the customer's attention focused during fueling?

To address these kinds of questions for all the hands across the globe that might touch a Helix fuel dispenser in its lifetime, a research team conducted nearly 100 in-person interviews and over 300 remote observations in 12 cities across nine countries, including the U.S., Sweden, Italy, Germany, Brazil, Russia, China, and India. Interview subjects included station managers, station owners, service technicians, motorists, and equipment buyers. Additionally, international regulatory and region-specific requirements were compiled for over 140 countries in an effort to assemble a complete product profile for Helix dispenser designs.

Thoroughness in pre-design field research is critical. It can be easy to minimize the importance of this step and rely on solely on expertise in an industry, but the adage "we don't know what we don't know" applies when it comes to the everyday workarounds and hassles experienced by customers. Don't forget that research should focus on other manufacturers' products as well, with potential to reveal what they do well and where they fall short. Finally, be prepared for negative feedback, recognizing it for the opportunity it is to help develop long overdue solutions to those common pain points.

3. Solicit customer feedback at defined intervals. Taking the learnings from the first two steps and developing them in a "vacuum" may not produce the most optimal design, especially in terms of the

defined scope. It's important to establish feedback with direct customers to both gauge design progress and integrate customers in the development of a product they will soon be using.

There is no prescriptive formula for this methodology, but at some point, it should include hands-on reviews of scale or full-size models and prototypes. There is a necessary place and time for sketches and renderings in early design reviews to refine field research into something conceptual, aesthetic, and feasible, but advanced polishing of a design demands full-scale engagement, similar to what occurs in the field.

Over the 3-year Helix dispenser design process, representatives from over 45 customers with business in over 90 countries had the chance to see and touch interim Helix dispenser designs at five industry tradeshow events. In the final year of development, over a dozen customer visits included a visual review of the Helix 4000 and



5000 dispensers, with opportunity for verbal feedback on the design. The design team categorized feedback from all reviews, which led not only to numerous refinements, but enhancements that did not exist in the original concept.

4. Know your expertise. More of a final tip than a step in the industrial design process, know the limitations of your company or organization. A 100-hundred year-old fuel dispenser manufacturer can leverage its expertise in hydraulics and metering, but may require assistance with aesthetic packaging, ergonomics, or Graphic User Interface (GUI) design. Companies like IDEO, a design and innovation consultancy that helped to guide the research and conceptual design of Helix dispensers, boast a rich understanding of the industrial design process, as well as an extensive portfolio of products spanning various industries to which they've contributed their expertise and creativity. This kind of knowledge and experience helps focus the ID process, avoid group-think results, and brings design solutions from other industries to the drawing board that might not otherwise have been considered.