

User Experience Design. We've heard a lot about it in recent years, but what actually is it? Below, you'll find a Charcuterie board of UX terminology. Consider this your cheat sheet for future articles as we continue to dive deeper into the software and technology side of automotive.

So...what is UX?

Let's start by breaking down the terminology here.

User: the main character of the story (that's you!)

Experience: the emotional and physical response evoked from the surrounding environment.

User experience design will have varying definitions depending on who you ask. To me, UX design is the process of understanding how the user and product interact with each other, and how we can improve that experience. It's essentially making sure that you are the main character in the story and the product is the supporting role, not the other way around.

UX is everything that affects the main character. Where are they, who are they, what goal are they trying to achieve, when and why do they need to achieve it.

There are lots of exercises that a UX designer will go through in order to determine these factors. Forming [personas](#) and use cases, holding workshops, and engaging in iterative design are just a few examples. We'll dive more into the UX career field and the human centered design process later on.

What is UI?

"User Interface" refers to anything the driver can engage with first-hand. If they can utilize their five senses to directly interact with something in the car, that would technically be considered an interface. It doesn't have to be just the digital aspect, although that is part of it. So, really, anything interior would be the UI of the car. The screen, transmission, gauges, steering, even the cup holder all fall under this umbrella. This is why CMF (colors, materials, finish) Design is so important. An example of something that wouldn't be part of the Human-Car Interface would be the engine. Yes, I know you gearheads love to work on your cars. The relationship you have with your car is very special, however the engine isn't something you directly engage with in order for it to work. Ignition? Pedals? Yes. Think of it like working with a desktop computer. You'd need a mouse, a keyboard and a screen in order to use the computer. These three elements would be the UI. The behind the scenes stuff, like the RAM and Hard Drive, would not be considered an interface for the same reason as with powertrain. Even though you could upgrade these components and work with them, it's about what you work with directly to use with the product as intended.

This is also usually the last step in the process and is the output after doing TONS of research & testing. One of my favorite things about UI Design is its intentional subtlety. So much of what goes into the final design flies under the radar. When designing an interface, so many factors come into play that go unspoken. Driver accessibility, design psychology, information

architecture, safety guidelines, the list goes on. The UI Designer's job is to take these guidelines in combination with their project's research to create the most usable and [aesthetically pleasing](#) interface.

There will often be iterative designs as the process moves along, but please be patient when working with your friendly neighborhood designer. The cherry on top comes only after building the rest of the sundae.

While there are several ways to execute the preliminary design, two common ways to prototype the design are via [low fidelity or high fidelity designs](#). In short, low fidelity designs are most beneficial in the beginning when things are less concrete. As the project nears fruition, the prototypes grow in their fidelity until they evolve to the finished product.

Now, I know what you're thinking. "That's great, so you're picking colors?" Well, yes. I do get to do my fair share of color science, but there's so much more that goes into the visual side! This is the very first interaction point users have with the product. It's basically the make or break of the product. There are some great products out there that have solid functionality but they just don't look that appealing or don't seem to make a whole lot of sense right off the bat. They're missing that intuition factor. The [attention economy](#) is fast-paced and unforgiving. The average user spends about [50 milliseconds](#) to decide whether or not they want to engage with this interface. That's not a whole lot of time, but impactful design can be what makes a business sink or swim.

What is IA?

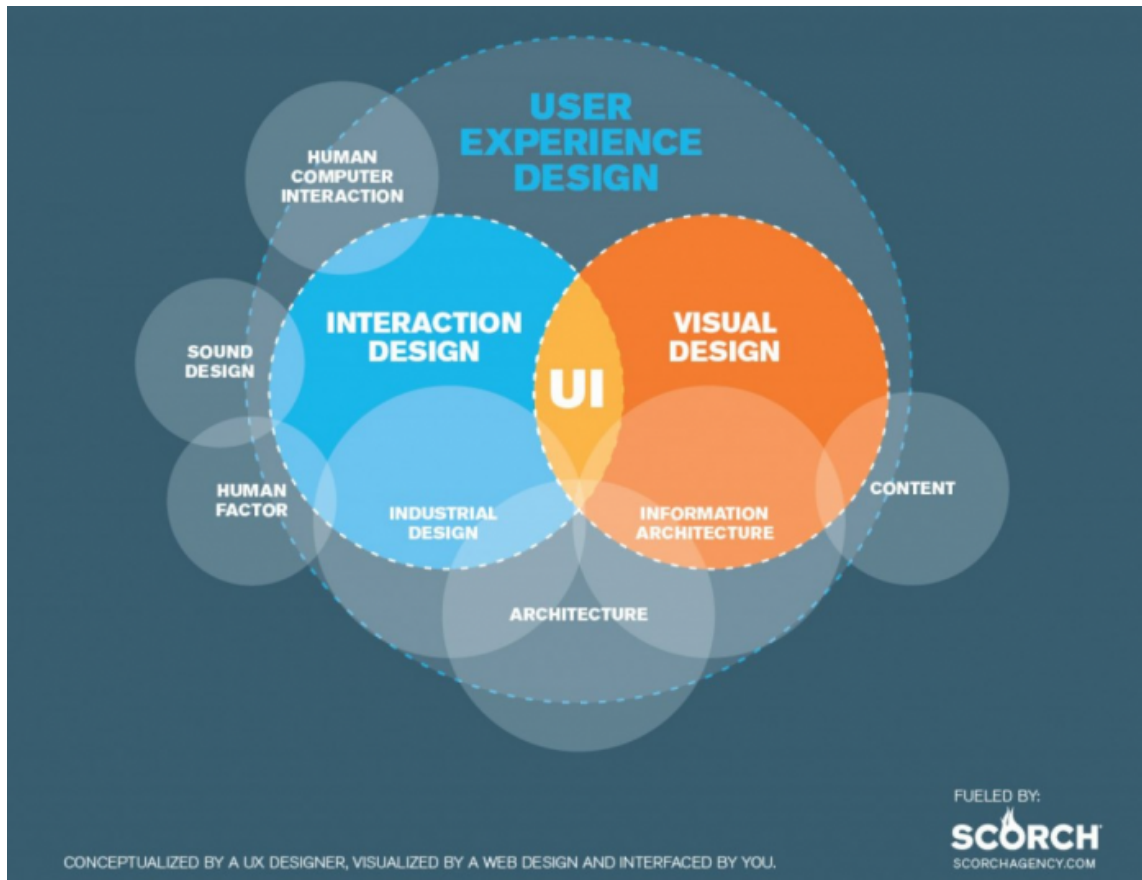
[Information Architecture](#) refers to content organization or navigation. It answers the question of, "what should go where?". This is also common practice in library science (taxonomy) and systems engineering. I like to think of it as "the art of making things make sense".

How do UX, UI and IA come together?

In automotive design, UX focuses on the ergonomics, human factors, and CMF. These components are also covered in the design and engineering groups.

IA is the content strategy figuring out the best way to organize all the data.

UI focuses on the digital and physical interaction points that go into it. These are not just visual points, but can be auditory and haptic as well. These core elements all come together to craft the vehicle's interior ecosystem.



So how do you know what's a good design?

Design is subjective, and UX design can be even more so. First off, let me start by saying that design is an iterative and conversational process. A good design is one that reflects these conversations between the designer and user.

The designer is not expected to, nor should they simply present the solution and be on their way. It doesn't work like that. One of my colleagues who is an absolutely amazing designer told me that one thing she likes to do with her clients is to present her initial designs and follow them with "tell me where I got it wrong". I love this approach simply because it's so accurate. You're not going to have the perfect design right off the bat, of course. Having these non-presumptuous conversations is how we as designers gain understanding and empathy. These two elements are a huge part of this process as you can only formulate solutions for problems you have a solid understanding of.

Although UX Design entails a whole bunch of research and data, this field rarely produces singular objective solutions. Oftentimes there are multiple ideas that could all prove beneficial, but the question then becomes "how effective is each solution?". This is when things like [A/B Testing](#) come into play. By providing concrete data on the performance of each solution, then the product team can make an informed decision on which path to proceed.

Why is UX becoming more mainstream now?

My suspicion is as the industry has been shifting into EV and other futuristic concepts, automotive design is being heavily influenced by big tech. Aerospace has always been an influential component as well. However, in recent years these two industries have been collaborating now more than ever. [NASA and Hyundai](#), [Boeing and Porsche](#), [JAXA and Toyota](#)...to name a few.

In short- more out of the box thinking is happening and focus is shifting. Product design is becoming more conversational than domineering, thus opening the floodgates for innovative design.

How does this focus impact future designs?

Ah, an excellent question. This is a revolutionary time in automotive. We're in the midst of a major industrial shift and no one is definitively sure where it's going quite yet. Everyone is exploring different ventures and technical creativity is at an all-time high. A few things I have noticed in recent years:

1. Cars are not phones. Keep in mind that the car's primary objective is to get the driver from point A to point B, not give movie showtimes. While we've been exploring autonomous driving, this assistance is still pretty low-level. While the drivers are still the primary reliance, we need to be mindful that there's a fine line between "infotainment" and distraction. Remember, the attention economy is quick and unforgiving when sitting perfectly still. Going 60 miles an hour? Catastrophic.
2. Accessibility is key. According to the United Nations Department of Economic and Social Affairs, [15% of the world's population live with disabilities](#). That means for those 1 billion people, 85% of the world is not designed with these users at the forefront. As a designer, that simply is unacceptable. We need to make more space for our differently-abled folks and have more inclusive features offered. They don't need to be standard, but they do need to be available.
3. Manual, automatic, and autonomous- three very distinct levels of driver-vehicle interaction. All three offer different levels of control and engagement. No single one is a be-all-end-all solution, yet it seems all of them are competing as such. I'm interested to see how they evolve over time.

I hope you found this cheat sheet to be useful and you are now more informed of what goes into the craft of UX Design. This is only the beginning.

Links

<https://www.nngroup.com/articles/persona-types/>

<https://www.nngroup.com/articles/usability-101-introduction-to-usability/>

<https://www.nngroup.com/articles/seductive-user-interfaces/>

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