

Perspective

The Smart Furniture Manifesto (version 2)

By Mike Kuniavsky

The first twenty years of my father's career as an automotive engineer were spent under the hood, tweaking tiny screws on carburetors to make them produce the right mixture of air and gas. The last ten he rarely left the cab of his test vehicle; all the tweaking was done with a terminal. The difference is not just one of new techniques, or of comfort, but a whole new approach that embodies knowledge about engines in the form of information instead of metal.

As a user experience designer, I design how people interact with technology—with software, hardware, and web sites. I'm constantly looking at the world through the lens of technological change and its affect on people. I also like furniture—not as a designer but as a consumer. It is as an outsider to furniture design that I see a world trapped in amber. Furniture design is stuck in the aesthetics of mid-century Modernism, looking at the world through an Industrial Revolution mindset of material manipulation. When new tools are used, it's to make the same old things—maybe a little slicker, maybe a little cheaper.

As tools, current furniture designs use little of the information available to them. The Allsteel Raptor, one of the most information-savvy chairs out there, uses the weight of the user to adjust the geometry of the chair. This is clever, but the mechanics are baroque and its structure is forever fixed. It can only use a fraction of available information about the sitter and the environment. Is this the most we can do? I don't think so. I believe furniture has to become smarter. By "smart" I mean it should process information about its environment, its users, and other devices to be more functional and elegant.

Understanding that manifestos are a dangerous thing for authors—on the one hand,

there's the risk of militantly stating the obvious; on the other, exposing a disconnect with reality—here's my challenge to all furniture and technology designers, the Smart Furniture Manifesto:

Item 1: Furniture will be smart

It's inevitable. Information processing has permeated every aspect of our lives, and it'll end up in mass-market furniture. The question is when it will happen, what form it'll take, and who'll make it. If the first generation of smart devices were things that were based around computation and communication—PCs and cell phones—the second generation saw the automation of objects that were much more analog: VCRs (TiVo), vacuum cleaners (the Roomba and Trilobite), and loudspeakers (B&O's BeoLab 5). The direction is clearly aimed away from using information tools for purely informational purposes to using information to satisfy the mundane needs of people's life. Furniture is clearly on that path, and the possibilities for information use in it are tremendous: cubicle walls that use cell phone IDs to determine who's sitting inside them and then change the pictures in the picture frames accordingly, a café stereo that plays songs off of visitor's laptop playlists, or a bookshelf that lets you search the text of the books that are on it.

Item 2: Smart furniture is better than dumb furniture

If something can do its primary purpose more elegantly and efficiently because it is smart, then it is better. What's better, a padded dashboard or an airbag? A cable box or a TiVo? Why design something new if not to make a more powerful and easy way to do something? Furniture that adapts to our desires, habits, and bodies—that makes our experience of the world more comfortable—is better than furniture that doesn't.

Item 3: Furniture must become smarter *now*

As our lives change, the tools of our lives need to change with them: the telephone and railroad necessitated more efficient document flow, which precipitated the shift from rolltop

desks with pigeonholes to the smooth-top Steelcase office desk. Today our world seems to be more flexible, diverse, and information-rich than ever. Such complexity requires tools that support it and manage it. Furniture defines our living environment and is the primary tool that can reduce the complexity of our lives, but it's almost never used for this.

The technology for creating smart furniture is here. Small, cheap computers, sensors and ad hoc networks are all mature technologies. With the exception of entertainment centers, mainstream furniture exists in a world of family dinners, regular sleep schedules, unstructured playtime and structured work environments. That's not our world. Imagine a club chair that through subtle, continual adjustments to its shape allows you to spend an afternoon working in your living room without requiring a yoga class afterward. Imagine a child's bed that monitors her sleep patterns and adjusts to give her (and you) a good night's sleep. Now is the time to start creating new tools, before bad ones become entrenched.

Item 4: People will prefer smart furniture to dumb furniture

Smart furniture presents the possibility of building more utility and more aesthetic possibilities than regular furniture. Since people like what works better for them, they'll like smart furniture more. Dumb furniture isn't without its advantages: it's simple to make and works for a long time without upgrades; it doesn't crash when the power goes out. But how much do those factors play into people's considerations of what to buy? Furniture's function in society today is as dictated by fashion as longevity or flexibility (that's why shoppers flock to Ikea in droves). And this makes furniture as frequently disposed of as everything else. If smart furniture can satisfy people's immediate needs better than dumb furniture, many of them will prefer it.

Item 5: Desks, chairs and partitions will soon become as quaint as vanities and Murphy beds

As lifestyles, work styles, and workplaces change, as the tools with which we live and work change, furniture adapts. The Murphy bed was an elegant technological solution to a social

problem (small apartments created by rapid urbanization in the early twentieth century).

Suburban American homes today have little need for Murphy beds (or hat racks, or wash basins).

Similarly, smart furniture will be part of the movement toward more flexible work and living environments already underway and will co-evolve with the new environments to change how furniture pieces are defined and differentiated. Desks have already turned into “work surfaces.” Merge those with active noise cancellation dividers in a meeting space and you have *Get Smart’s* Cone of Silence as a new type of furniture.

Item 6: Office and kitchen furniture will become smarter first, followed by the bed

Furniture that is most tool-like is likely to benefit from the potential of smartness first. The two areas that have the most tool-like furniture are the office and the kitchen. Trash cans, for one, are crying out to be smarter, to save our custodians time and our corporations money by announcing when they need to be emptied.

The bed is a particularly good candidate for becoming smart, since beds are generally close to power outlets, don’t move a lot, can hide a lot of technology, and are used for a fairly well-defined range of activities.

Item 7: Cars are furniture. The smartest piece of furniture today is the car

Cars are tightly integrated furniture systems tuned to a specific set of tasks. What differentiates them from Herman Miller office suites is that they are more closely integrated and, out of necessity, they’re bolted to a set of wheels and a motor. And, yes, this means that, by extension, motorcycles are chairs. Really fast chairs.

Item 8: The Aeron is the last gasp of nineteenth-century Industrial Revolution thinking, even if it’s comfortable

When was the last time you had to set the choke on a new car? As a tool for work, I think

that the Aeron is the best office-chair design in many years, but its complexity points to an antiquated attitude toward work. Its Rube Goldberg-esque array of controls belongs to an era when having *a chair for a task* defined *a job*. If the trend is away from having one task and one chair, it's away from one set of chair settings.

As a user experience designer, I see the mechanistic controls of the Aeron giving the illusion of customization and flexibility but really creating a new set of concerns for the sitter. It assumes that someone will care enough to understand the ergonomic information provided to configure it, which assumes that their job is such that this is important. I bet few Aerons get configured correctly.

Item 9: Smart furniture must embrace information like dumb furniture embraced manufacturing

One of the core ideas behind Modernism was to let the materials guide the design, to maximize the possibilities inherent in the technology. Information may be the most malleable and most powerful material because it enables other materials to behave in ways impossible through other means, like the rebar in concrete. Whenever information processing has been added to a purely mechanical product, it has profoundly changed how that product is made and what it can do, generally making it both cheaper and—from the perspective of the user—better. It's time for furniture to join that trend.

10. YOU, furniture designer, stop bending metal and start programming!

So is Smart Furniture a panacea for all our ills? Here I must abandon my idealism and recognize that just like all technologies, there are plenty of potential downsides. On the most basic level, it can introduce all kinds of complexity and failure modes that don't currently exist. From a privacy perspective, it can reveal details about us—reveal to our employers when we're not at our desks and to our lovers when we're not in bed. But all of this stems, really, from bad design that doesn't consider people's experiences, design that happens when things are not designed at all,

just built—which may be the most important reason to start designing smart furniture as soon as possible.

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