Stanford eCorner

Prototyping the Mouse

David Kelley, *IDEO*

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Video URL: http://ecorner.stanford.edu/videos/687/Prototyping-the-Mouse

Kelley narrates his experience prototyping the Apple and the Microsoft mice.
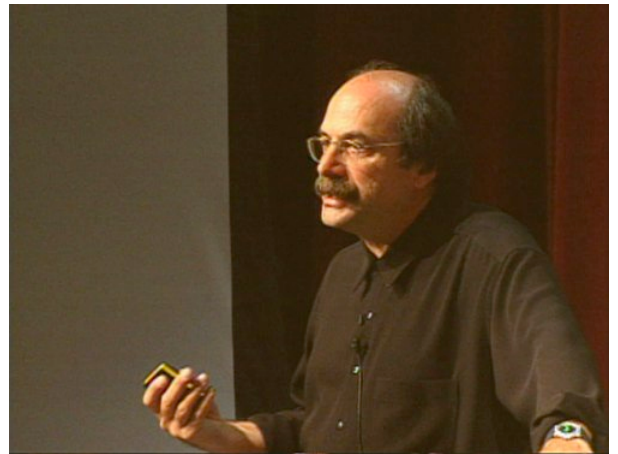
Transcript

So many companies have this kind of specification-driven culture. This is Michael Schrage who wrote a book called Serious Play, I believe. Anyways, he talks about prototype-driven cultures versus specification-driven cultures. You see it in companies all the time. When we go in and do an innovation audit to see what's blocking companies from being successful in an innovation way, it's really obvious if they're a specification-driven company. There's lots of examples. There's Gossamer Condor who won the Kremer Prize. This was a case of bunch of guys flying whatever they could find and then crashing it and running out and taking a broomstick and duct tape and fixing it and then trying again and trying again and they won this prize by doing that. My own favorite example is the Apple mouse which we designed the technology of early on. The mouse was designed by SRI and Xerox Parc; Doug Engelbart, a wonderful guy.

But it wasn't commercialized. We commercialized it at Apple and so went through many, many prototypes. It was done from zero to ship in nine months and we did about three or four prototype runs. This is the first prototype where we learned that the ball was going to have to be separate from the case. If you pick up your mouse and push on the ball, it's separate from the case now. That's so that you can't apply too much force on the top of this. If you applied too much force on the top of the first prototypes, the ball would skip so we had to do it so you'll see the balls. Most of the mice other than the optical ones still have our mechanism and the ball floats. If you go to the second prototype, we found that the ball was going to pick junk up off the desk like eraser filings and so forth or whatever eraser things are, and they would push them up into the optics and so we had to make the ball removable. So if you look at most mice today, the ball removed.

This was the prototype on the left that didn't have a removable ball and we had to move the ball. It's funny how it's kind of a lame solution but it still continues today, just kind of an artifact of what we were doing at the time. Then, the last thing is we would rate mice in miles to failure by taking an old turntable and sitting the mouse down on the turntable and seeing how long it took before it started to fail. We'll make records of different desktop materials like glass or wood or Formica and see how that affected them. That was a long time ago. Then we did Microsoft's mouse. We built all kinds of prototypes. We thought that at that time the smallest one was the little square one over there and I thought that one would win the test and we started actually testing it but it turns out that the bigger one, people liked the kind of palm it like a bar of soap on the table and not hold it like this where you would actually get to the kind of more active region in your muscle structure. So that was the decision but it was by making lots and lots of them and showing it to lots of people and doing it quickly and doing it in a kind of fashion that offends engineers which is they're showing unfinished work. They finish stuff and they want to tell you all the things instead of kind of laying back and letting the users tell you what's wrong with it and then fixing it.