

Nine 2.009 Product Risk Factors

Matt Duplessie, a former 2.009 student, CEO of [Level99](#) and many-time 2.009 instructor, prepared nine 2.009 product risk factors. Product value propositions that are difficult to realize in a new product innovation context and/or educational context.

There are some categories that tend to be perilous. It's not that the value propositions listed below should simply be dismissed, but each comes with their own cautions.

1. We can make it cheaper. "Why does this existing product costs \$500? We think we can make it for \$100."

It is hard to come up with something new and low cost at the same time. Typically, one gets an initial product and then works on getting the cost down. Reducing cost often involves optimizing design and manufacturing details, which can be difficult while simultaneously trying to innovate—unless there is a fundamentally new enabling technology.

2. The multi-tool. "Let's take several existing products and combine them into one does-it-all solution."

Doing a multi-tool most typically means compromises in many functions. Most highly successful products know the one need that they really need to hit, and do it very well.

3. Dorm life. "By students, for students—that's what we know."

In practice, we rarely design products for ourselves, and doing so usually results in a niche product without broad interest or impact. It will likely be a stronger learning experience when we design beyond our own horizons.

4. EECS. "Let's make a project that is entirely electrical engineering—we have a course 6 team member."

Almost all products are a mix of mechanical and computational/electronic elements. So, we do need to address a broad technology scope and also keep learning as we design.

That said, when developing products one typically also considers core competencies, and makes sure that a number of design team members (not just one) are involved in core aspects of the product.

5. Make it smaller. "How about we make a scooter that fits in a pocket—current scooters are just too big to carry around."

This path has challenges similar to "making it cheaper" as discussed above—unless there is a fundamentally new technology that will enable miniaturization.

6. We can make it smart. "Let's add sensors and displays."

More isn't more when it comes to product design. We want to make sure we clearly understand the core need we are addressing and our value proposition. Otherwise, adding features pretty much only means it's more complex, more expensive, and has more ways to fail.

7. Alternate power supply. "We can take an existing product but make it solar/bicycle/USB powered."

Similar to lowering cost and making things smaller, making things more efficient for alternative energy sources is optimization-oriented and challenging in a new product innovation context—unless there is a new enabling technology. Also, if they don't exist in alternate energy forms now, it is very important to understand why that is the case, and the user need behind searching for an alternative power source.

8. R&D. "This technology/sensor/material/chemistry doesn't exist but we can develop it!"

R&D takes place in the R&D labs, not in a new product development path (which focuses on novel applications of existing technology). The timescales of R&D and a product development cycles are very different.

9. A new process. "It's not so much a product idea as a new method for doing something."

Designing processes often requires context, infrastructure, and scale that that may not be accessible to a 2.009 team. Processes typically involve work-flows and therefore involve

designing a long chain of elements interacting in a system. Better results tend to come when we can nail down a concrete user need and can design and test in real conditions.