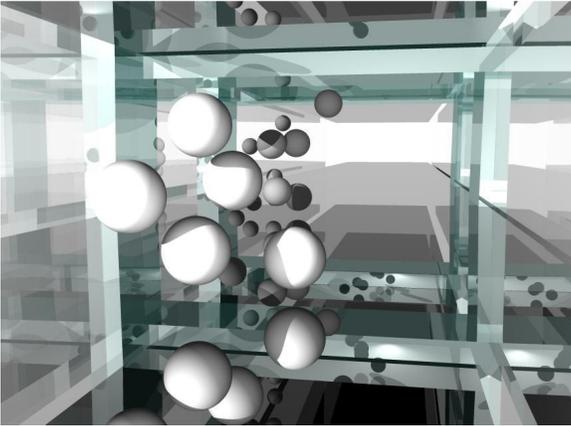


An Introduction to Digital Prototypes

by Lindsay Grace



A good digital prototype convinces us of its reality and compels us to make it real. It is an imaginative piece of visual fiction that excites our interest and sates our needs. It does not exist, but we want it to exist. It has not been made, but we are eager for its production. If you have succeeded at proposing an engaging idea, we want to check our accounts to find a way to afford it, our maps to figure out a way to visit it, or an encyclopedia for its nearest substitute.

A good digital prototype is a proof of concept so convincing that we want it to be real. As project stakeholders, we are willing to invest money and resources into it. We are so excited by its potential reality that we are willing to take risks to make it work. It is not merely an illustration; it is a perfect fiction to which we excitedly subscribe. Much like the digital prototype in engineering, it is plausible, not merely possible. It is proof of a possibility, illustrative of the probable wonder in a previously unrepresented solution.

What is a Digital Prototype?

The term digital prototype is quite loaded. Engineering defines a digital prototype as a highly accurate digital simulation whose technical data could be fed directly into a production process for manufacture. Art defines a digital prototype as an illustrative proof of concept, whose final form is more suggested than decided. For this course, a digital prototype is all manner of digital illustration and concept whose conception informs iterative design and whose presentation entices investment, interest or action. In short, a digital

prototype is an appropriately illustrative proof of concept pitch.

Digital prototypes should have the following:

- A clear statement of purpose, typically describing the solution to a problem or a vehicle for theoretical investigation.
- A convincing reality, as achieved through partial production, scaled production, or imitated realism
- Appropriate documentation to communicate the goals of the prototype
- An appropriate application of possibility, a digital prototype should not be based on the clearly impossible

These are the fundamental factors to consider in understanding why the digital prototype is so important and growing in popularity:

- The culture of “show don’t tell” is growing
- The expense and complexity of creating 3D animations, working interactive software, and other proof of concept technologies is decreasing
- The marketplace for ideas is competitive, once a single pitch offers a high quality digital prototype, it lessens the appearance of those that don’t
- The preference for iterative design approaches (quick build solutions) has increased

Making a digital prototype is fundamentally about taking low cost resources to build. As in other disciplines where models are constructed from plaster, paper, wood or in scale, digital prototypes are constructed from the most appropriate low cost resources. In this case, cost is a factor of both time and money. Like fundamental microeconomics, digital prototype cost varies by builder. If someone has experience with Maya, a proof of concept 3D animation may cost them little when compared to a renting a camcorder and learning video editing software. Yet, a film student with experience with shooting digital video may find the cost of producing a live-action proof of

concept video much cheaper. The first rule of digital prototype production is that it's very important to use the cheapest technological solution available for the best result.

As in the physical world, which grades plastics and evaluates the polish of prototype materials, a good digital prototype considers the tradeoffs of specific technologies versus the benefits to the prototype's goals. If prototyping the look of a car body, it might be important to pay attention to the material finish, since the car's body serves both an aesthetic need and an engineering need. Yet, if prototyping the chassis of that same car, the aesthetic falls behind the emphasis on structural integrity and other engineering needs. Likewise, the digital prototype is subject to the same evaluations. If the digital prototype is designed to demonstrate the potential in a new rendering system, then the aesthetic properties of the chosen technology are very important. Yet, if function exceeds form in the proposed solution, then the lowest cost functional tool must be pursued.

Digital prototypes are largely answers to questions. They should be pointed, and executed at the appropriate level of detail. Consider the boring person at the party. When asked where he is from, he could answer Chicago; list all of the places he's lived since he was born, or simply answer that depends. There are many ways to answer this question, but ultimately most people just want to know the basics, where do you live now. However, the answer depends largely on context. If visiting a foreign country the answer has every different resolution (country level) than if in your home town (neighborhood level). This illustrates the second rule of digital prototyping. It is very important to understand your audience. You'll notice that everything has read the "appropriate" level of detail. That's because there is no clear guideline for how much or how little you should share. There is simply context and goal.

The context for your digital prototype is typically informed by your goal. If your goal is to gather support for your project, then your context focuses on the compelling your audience. Essentially, your context is a marketing pitch. If your goal is to prove the merits of a

particular solution, your context is proof of concept. Essentially, your context is technical pitch. The context depends largely on what you plan to achieve, but context changes. The digital prototype might pass from a preliminary funding review, to a subject matter expert and back to funding review. Ideally, your digital prototype would resonate with all the expected audience members, but realistically you may need to make two different digital prototypes to meet this goal.

In this course we will discuss how to identify the appropriate technology, goal and context to make an effective digital prototype. We will also discuss the ways in which people use digital prototypes, how to read the prototypes, and how to enhance design processes through their use. In short, we will make, break and play. ■

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