Eight Common 3D Digital Product Creation Pitfalls and How to Avoid Them

by Steve Riordan and Will Yester

Digital product creation (DPC) is the practice of designing, prototyping and verifying products in a virtual and collaborative environment. The value created by digital technologies throughout the end-to-end product lifecycle and across functions is significant, but so are the obstacles.

In a research report from Kalypso, the Indiana University Kelley School of Business Center for Education and Research in Retail, and Market Key, we studied leading product development practices in the retail, footwear and apparel (RFA) industry to see where leaders are focusing their transformation investments. In the research, DPC emerged as the practice area where most respondents have actively begun investing.
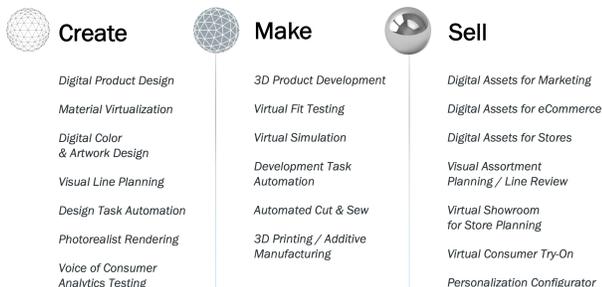
However, our research also indicates that despite the DPC investments being made across the industry, few have achieved scale in their efforts.

> So once a company is invested in 3D, how can they successfully drive a program that achieves real business value?

Based on our experience helping clients drive DPC transformations, here are eight common pitfalls and how to avoid them.

Pitfall 1: Failing to adopt a holistic, cross-functional strategy

Companies need to develop a strategy that encompasses the entire product development cycle. Not only the *create* process, but the *make* and *sell* processes as well. The graphic below depicts the ideal end-to-end scope for DPC. Companies often focus on only one functional use case, when in reality, end-to-end DPC requires multiple initiatives across numerous functions.

Create	Make	Sell
Digital Product Design	3D Product Development	Digital Assets for Marketing
Material Virtualization	Virtual Fit Testing	Digital Assets for eCommerce
Digital Color & Artwork Design	Virtual Simulation	Digital Assets for Stores
Visual Line Planning	Development Task Automation	Visual Assortment Planning / Line Review
Design Task Automation	Automated Cut & Sew	Virtual Showroom for Store Planning
Photorealist Rendering	3D Printing / Additive Manufacturing	Virtual Consumer Try-On
Voice of Consumer Analytics Testing		Personalization Configurator

The biggest trap many brands and retailers fall into is that they treat DPC as a deployment project rather than one focused on achieving company-wide adoption in support of a broader 3D strategy. Keep in mind that it's not just about a single new innovative tool; it's about enabling a whole new way of doing business and developing products.

Pitfall 2: Minimizing the importance of internal and external collaboration

Successful DPC programs are inherently cross-functional, so failing to collaborate outside of the product development team also means failing to realize all the potential business benefits.

Collaborate with downstream stakeholders, like marketing and sales, from the beginning. Any function that may benefit from 3D assets should have a seat at the table. Remember that 3D tools are not just a better way to design – they can transform how a company does product development. A DPC program requires a robust organizational change process, so cross-functional executive support is also critical.

External collaboration is a critical consideration. Collaborate with vendors and other stakeholders who play a role in the end-to-end process. Consider adding external resources to the product creation steering committee. A complex RACI model will clearly identify roles and responsibilities throughout the program and highlight when and where potential collaboration can occur.

Pitfall 3: Thinking that DPC is about just one technology

Foundational technologies like product lifecycle management (PLM) have a broad set of capabilities that facilitate the work of multiple functions, which means most companies choose one platform that meets most of their requirements.

But for DPC, there are potentially numerous categories of technologies involved. To achieve the breadth and depth of functionality required across *create*, *make* and *sell*, multiple visual technologies must be deployed, including 3D modeling, rendering, material virtualization, digital avatars, fit analytics, augmented reality, virtual reality and more.

Think of DPC as a suite of best-of-breed solutions that complement foundational technologies like PLM, digital asset management (DAM) and product information management solutions.

Pitfall 4: Insisting on the same standard process flows and tools for all categories

Keep in mind that DPC processes – and even tools – may vary across product categories like footwear, apparel and hardlines.

DPC tools for hardlines are the most capable, because similar solid modeling techniques have been used in automotive, aerospace and high-tech industries for decades. Apparel modeling tools have made great advances in recent years and are beginning to realize the ability to support a workflow from *create* to *make* to *sell*. Footwear is a complex product that shares characterizes of both apparel and hardlines. This complicates the modeling process and workflow, but many footwear companies continue to make great progress.

Just because a tool and workflow are successful for one category, it doesn't mean they will work for another. Each category needs to be considered separately. Consider allowing the use of more than one 3D design solution within each of the product categories, like apparel, to improve collaboration with product vendors and to drive adoption from internal design team members.

Pitfall 5: Neglecting to build a solid data foundation

An alarming misconception that we often hear from clients and 3D software vendors is that PLM is not a prerequisite for DPC. Sure, it's possible to experiment with 3D tools – and even run some compelling proofs of concept – without integrating to a PLM database. But scaling DPC capabilities and driving full value for the organization requires a strong, integrated data foundation.

Designers and developers need a library of materials, lasts, blocks and trims at their disposal, as well as a clear connection with product architecture. With the scale and speed at which retailers operate, a strong foundation of PLM and DAM is critical for DPC success.

Pitfall 6: Underestimating the impact of talent and organizational structures

DPC tools require a different skillset than 2D apparel and footwear design tools (primarily hand sketching or Adobe Illustrator). Given this steep learning curve, adopting DPC for design requires both upskilling talent and considering new organizational structures to support these teams during the transformation.

The most recent wave of students graduating from design schools are digital-ready. They *expect* to work in 3D, which is a big change from prior generations with deep skills (and preferences) for 2D. To address this gap, consider creating an in-house 3D design bureau or Center of Excellence (CoE) that provides 3D services to all categories, supplementing 2D designers instead of requiring them to retrain.

Not quite ready to commit to retraining or creating a CoE? The good news for retailers is that many manufacturers have anticipated 3D growth. Retailers and manufacturers can partner, with vendors providing the initial 3D image and retailers then editing or commenting.

Pitfall 7: Getting stuck in proof of concept purgatory

It's a real place. Proofs of concept are necessary to validate techniques and capabilities, but they are not enough to support transformation. It's relatively easy to run a proof of concept (POC) and declare success, but it's much harder to apply the learnings of those small-scale efforts to the size of the businesses.

Since POCs tend to address one function at a time, they often fall short of a cross-functional approach. Make sure to establish metrics and success criteria *before* starting a POC. Establish and align on a vision for what happens if it's successful. A POC is just one, very early step in a successful DPC program – don't get stuck here. Be prepared to fail, learn, and adjust.

Because DPC has the potential to drive significant product development transformation, at some point it requires a vision, strategy, senior executive sponsorship, business case and roadmap in order to be successful. Focus on these elements to break out of proof of concept purgatory.

Pitfall 8: Adopting a wait and see approach

Successful DPC programs take time. Some of the most successful examples have taken seven or eight years to achieve value. However, the learnings from those early digital pioneers sets the groundwork for a new set of companies to follow in their footsteps and generate results faster. The next wave of companies is targeting a two- to three-year timeframe.

Don't be hesitant to get started – a wait-and-see approach means an endless game of catch-up later. Start now, even with a POC, and leverage people in your organization that are forward-thinking to help lead the transformation. ?

The Bottom Line

The RFA industry is at an inflection point – DPC tools have advanced and these capabilities are gaining momentum as companies show proven results. The bottom line: start now, think holistically, and strive to avoid these pitfalls along your transformation journey.

Learn More

[Digital Product Creation - Create, make and sell products in a virtual, collaborative environment](#)

[Video: Digital Tools to Transform Retail Product Development](#)

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