Beyond the Mirror: Building an AR Virtual Fitting Room & Lessons from Google’s Doppl Experiment

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Introduction

For years I’ve been fascinated by the idea of buying clothes without stepping into a store. During my bachelor’s degree I built a working **Augmented Reality (AR) virtual dressing room** using Unity 3D. It let users stand in front of a camera and see a digital garment overlaid on their body in real-time, complete with color and style variations. While the technology was experimental, the feeling of seeing a realistic outfit appear on your reflection was magical and it hinted at a future where physical fitting rooms might become optional.

Fast-forward to 2025 and even Google is experimenting in this space. Their **Doppl** app promises to let you upload a full-body photo, pick an outfit from anywhere on the web and watch AI generate a short clip of you wearing it[1]. As a product manager-in-training, I wanted to see how my own project stacks up against Doppl, what lessons we can learn from their approach and where the opportunity lies to build better virtual try-on experiences.

My AR Virtual Dressing Room Project

During my final year at university I worked on a capstone project titled **"Augmented Reality-based Virtual Fitting Room using Unity 3D."** The goal was simple: allow users to try on garments digitally, get a sense of style and fit and reduce the frustration of online returns.

The system used a depth camera to capture a live image of the user and applied a **virtual garment mesh** over the body in real time. We pre-processed each clothing item to remove background and generate a skin-tight mesh; then we used Unity 3D's physics engine to simulate drape and movement. Users could **select different sizes, colors and styles**, and the garment would adjust accordingly. Beyond the fun of trying on clothes virtually, we focused on:

- **Measurement accuracy:** capturing shoulder width, torso length and inseam using body-tracking algorithms to suggest the right size.
- **Realism:** realistic cloth physics so that fabrics followed your movement rather than appearing pasted on.
- **Privacy:** all processing happened on-device; no photos left the device unless the user chose to share them.

This project taught me a lot about the **data and modeling challenges** inherent in virtual try-on. Clothing must deform naturally, body tracking needs to handle diverse shapes and camera angles and users want both **accuracy** and **speed**. In hindsight I realize we were solving a product problem reducing return rates and boosting buyer confidence using AI and AR as tools.

What is Google Doppl?

According to Google Labs' overview (summarized here via Pincel's review), **Doppl** is described as an experimental AI playground that lets users try on clothing virtually by uploading a full-body photo, selecting an outfit from the web and watching AI transform it into a short animation[1]. It sounds futuristic and fun, and there's clearly demand: who wouldn't want to see themselves in an outfit before hitting "buy"? However, early users reported several quirks. The app sometimes struggles to distinguish shorts from pants, adds shoes that aren't in the original outfit and even replaces your legs entirely[2]. One reviewer joked that they "got AI-generated toes" when the system couldn't render feet correctly[2].

Pincel's side-by-side comparison highlights some of the trade-offs. Doppl is currently **mobile only**, generates a basic animation from screenshots, produces inconsistent output accuracy and imposes restrictive content filters[3]. By contrast, alternative tools like Pincel's AI Clothes Changer preserve body shape and pose, allow a wider range of outfits and deliver cleaner, photorealistic stills[4]. In other words, Doppl is impressive for a demo but still rough around the edges.

Where Doppl Shines

Despite its flaws, Doppl shows some product strengths worth celebrating:

- **Seamless onboarding:** uploading a photo and choosing an outfit from any screenshot keeps friction low. Users don't need to measure themselves or scan garments ahead of time.
- **Generative video:** turning a single image into a short animated clip feels more alive than a static overlay and hints at future dynamic fitting rooms.
- **Any-outfit input:** by allowing screenshots from the entire web, the app taps into existing online catalogs rather than forcing brands to pre-process garments.

For an experimental release, those features create a delightful "wow" moment. That's important in building early buzz, and it's no surprise people are sharing their AI outfits on social media.

Where Doppl Falls Short

User feedback suggests that Doppl still faces several **pain points**:

1. **Output realism:** the app sometimes misidentifies clothing types, merges limbs and adds footwear that wasn't selected[2]. These artifacts break immersion and erode trust.
2. **Accuracy and fit:** with no body measurement or pose calibration, the generated outfit may look good in the clip but doesn't tell you whether a medium or large will fit.
3. **Content restrictions:** some styles and body types are filtered out or rendered poorly[4], limiting inclusivity and preventing users from exploring the full range of fashion.
4. **Privacy and data use:** there is little transparency around how uploaded photos are stored or used. For a product that collects full-body images, privacy is a serious concern.

A Product Manager's Blueprint for a Better Virtual Try-On

With my technical background in AR try-on and my passion for product management, here's how I would evolve the concept into a robust product ready for mass adoption:

1. Start with the User Problem

Virtual try-on exists to **reduce buyer uncertainty** and **improve shopping experiences**. Before building features, talk to shoppers and retailers: why are they hesitant to buy clothes online? Are returns due to sizing, style or confidence? Define clear success metrics—e.g., reduce return rate by 20 %, increase conversion by 10 %, improve user satisfaction scores.

2. Nail the Fundamentals: Fit & Realism

- **3D body modeling:** borrow from my Unity 3D project by capturing simple measurements (shoulder width, torso length) from a video or multiple images. Use these to scale garments and provide size recommendations.
- **Physics simulation:** incorporate cloth simulation so fabrics drape naturally when the user moves. This makes outfits look real rather than pasted on.
- **Dataset diversity:** train models on diverse body types, skin tones and poses to avoid the distortions and censorship issues seen in Doppl[4].

3. Prioritize Privacy & Transparency

Users upload full-body photos; trust is non-negotiable. Offer **on-device processing** or encrypt images at rest, clearly communicate how data will be used and let users delete their images anytime. Provide a toggle to opt out of model training.

4. Design for Inclusivity

Make sure the system supports a wide range of styles (including plus-size, non-binary and culturally specific clothing) and doesn't impose arbitrary filters[4]. Use human reviewers to audit the model's outputs for bias and build a feedback loop where users can flag inaccurate or inappropriate results.

5. Build Smart Feedback Loops

Allow users to **rate** the realism and fit of generated outfits. Collect edge-case examples (e.g., shorts vs. pants) and use them to retrain the model. As a PM, define quality metrics (pixel accuracy, garment overlap, body-part preservation) and monitor them continuously.

6. Launch Incrementally & Measure

Release the product to a small beta group, track quantitative metrics (conversion lift, time spent, return rate) and qualitative feedback. Iterate on the model and UX quickly. When metrics meet your targets, scale up partnerships with retailers and integrate checkout directly into the experience.

7. Enrich the Ecosystem

Imagine connecting the try-on experience to **personalized recommendations** (AI suggests outfits based on your wardrobe or trends), **social sharing** and **digital wardrobes**. Partner with brands to offer exclusive looks and integrate loyalty programs. These features turn a fun demo into a valuable shopping platform.

Building Your PM Portfolio: Turning Projects into Stories

If you're like me—transitioning from technical roles into product management—the combination of personal projects and industry analysis is powerful. Use your own work as a **case study** in problem-solving, and then critique existing products like Doppl to show how you would iterate. Recruiters love to see:

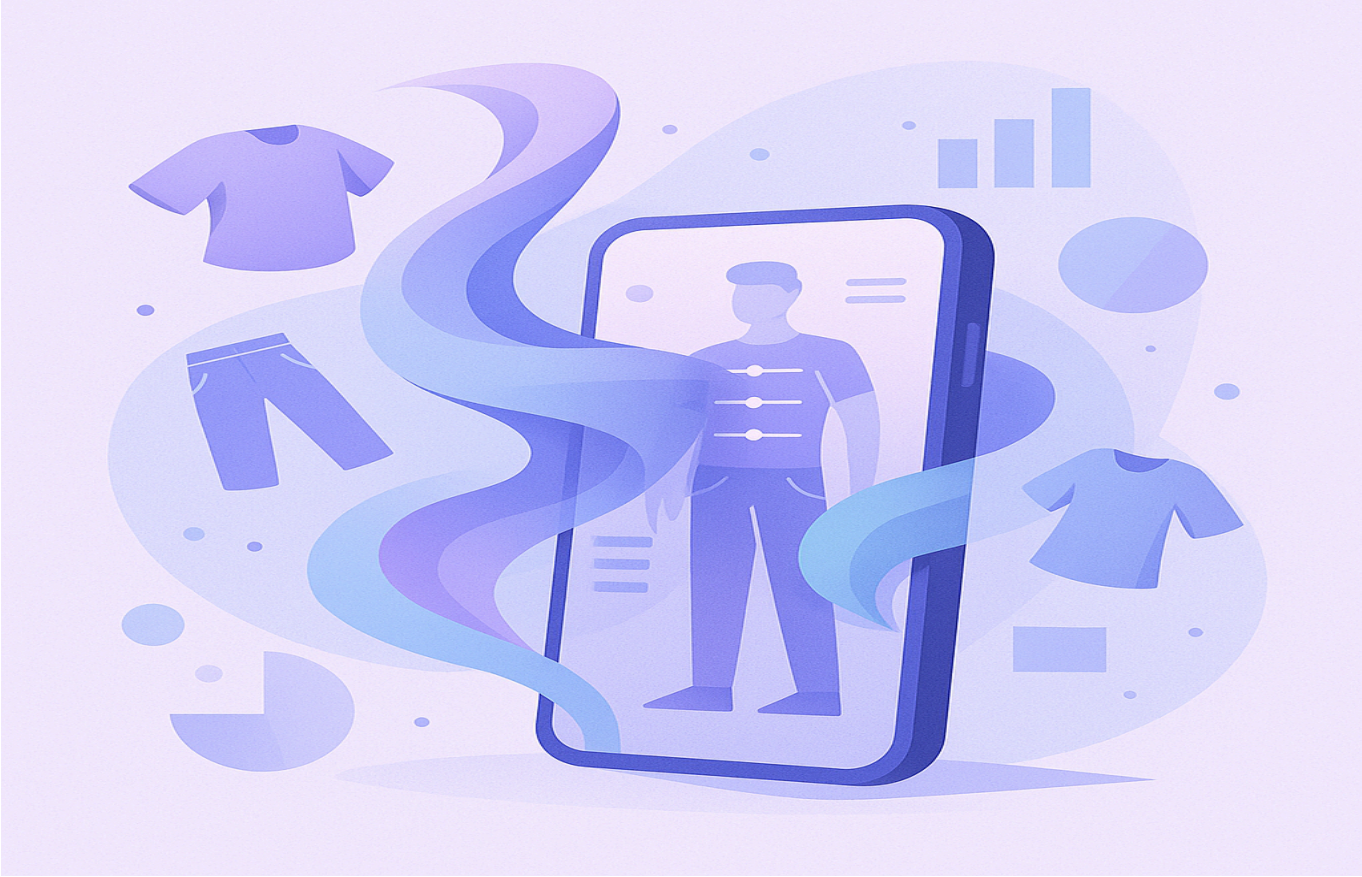
- A clear **Problem** → **Solution** → **Impact** narrative.
- Real metrics (even if approximate) and user feedback.
- Awareness of privacy, ethics and inclusivity.
- A proactive plan to improve products rather than just pointing out flaws.

Documenting your journey in blog posts not only **demonstrates product thinking**, it also helps you articulate your ideas to potential employers.

Conclusion

Virtual try-on technology sits at the intersection of AI, data and user experience. My Unity 3D-based dressing room proved that realistic digital garments are possible with good body tracking, physics and a focus on user privacy. Google's Doppl experiment, meanwhile, shows how generative AI can create engaging content but highlights the importance of accuracy, inclusivity and transparency[5]. As product managers and builders, our job is to combine these lessons: delight users with seamless experiences, respect their data and iterate relentlessly using metrics and feedback.

By pairing innovation with empathy, we can build try-on experiences that not only look good but also earn lasting trust—and that's what will ultimately change the way we shop.



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