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AUG 4, 2020 2:39PM EDT

These 3D Technologies Are Changing the Way Shoes Are Made

By Madeleine Streets



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3D technology is not the future for footwear design — it's already here, changing the way brands design and market their product. When it comes to footwear production, 3D technology has been introduced at multiple stages. Significant attention has been given to 3D printing for its tangible results, but 3D software, whether utilized for product ideation or marketing visualization, is emerging as an influential solution at both ends of the footwear journey.

"If you look at the major footwear manufacturers, there's been conceptual modeling in some way for quite some time," said Scott Green, director of product management in the software business unit at 3D Systems. "They have artists who do 2D paper drawings and designs, but then at some point, someone has got to make a looks-like, feels-like model."

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As software design has improved, this 3D modeling has been brought forward in the production process so that designers frequently now create their initial ideas directly in the software. Through solutions like 3D Systems, brands can generate high definition digital renderings that can be shared for improved collaboration within teams. Useful "undo" functions can also enable experimentation, which may prove more difficult with a physical model. For designers who enjoy creating directly with their hands, the company's Geomagic Freeform software includes a haptic element, so that employees engage in a tangible process.

Seeing a 3D render earlier in the workflow, projected onto digital replications of a brands' proprietary lasts, can also help designers detect any issues before the

designs are physically replicated in a sample. These digital files can then be shared with manufacturers in real-time, eliminating errors in translation from 2D to 3D models and minimizing sample waste in the process.

"That close working relationship between creativity, modeling and production needs to be in place," said Green. "You have people designing stuff that can't be made, and that ends up creating dissatisfaction with the process. The communication needs to be there, working in lockstep, in order for work upstream to be useful downstream in production."



New Balance uses Foundry software to create its 3D sneaker models.

CREDIT: COURTESY OF NEW BALANCE

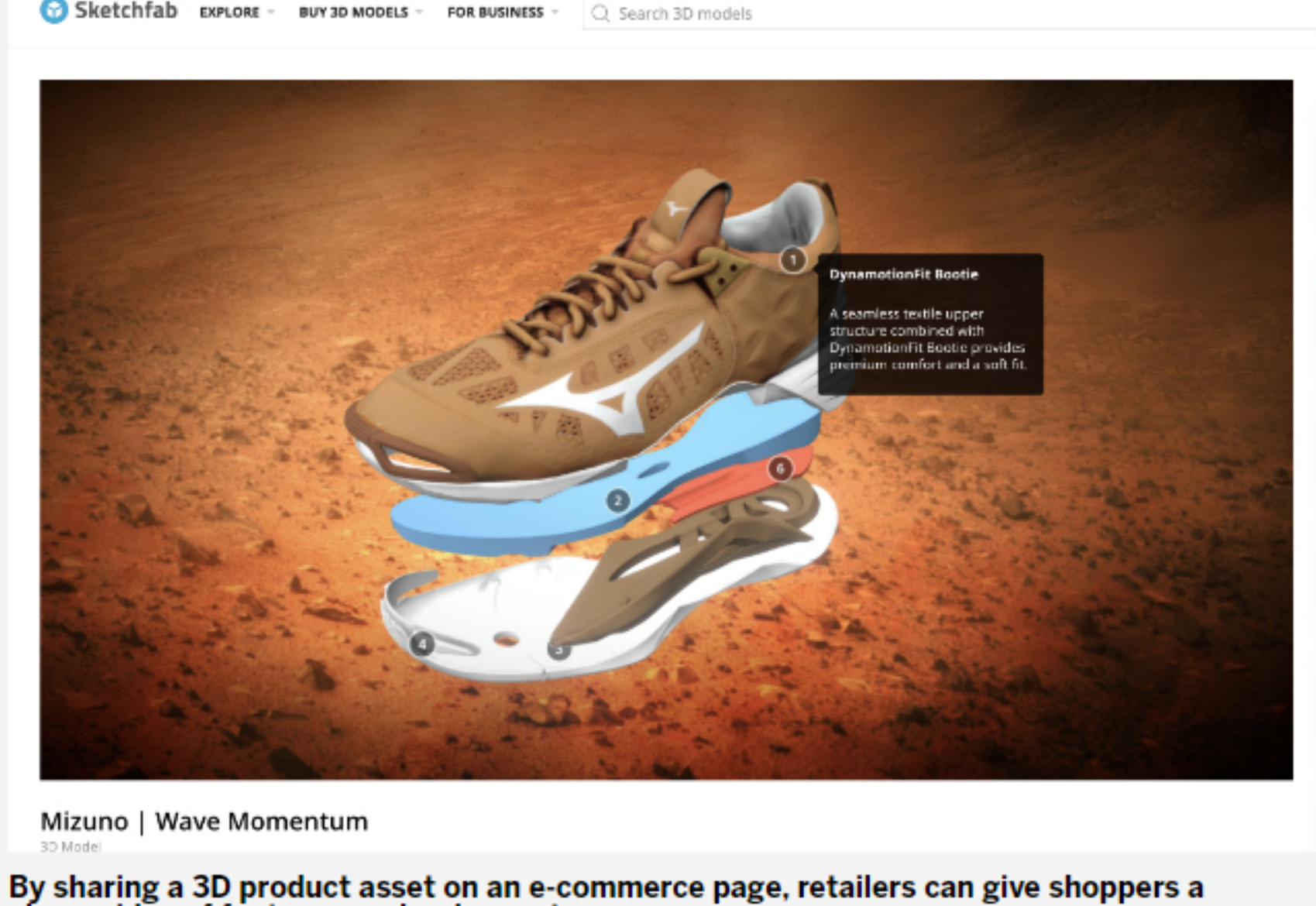
One challenge that many footwear companies face when introducing new technology is ensuring wide-spread adoption. In anticipation of a reluctance from designers to shift away from traditional methods, 3D design company Foundry offers a system that allows for 2D design to be translated through its software.

In the Modo program, designers can create flat shapes and the software will wrap them onto a 3D last. Any further changes can be made in the 2D format, to be automatically updated on the 3D version.

"We have found that not all traditional 2D designers want to make the transition to using 3D tools," said Jody Madden, CEO at Foundry. "For many, retooling their skillset is difficult. Our program has been engineered to remove any potential risks organizations may feel. Many companies find that being able to rapidly iterate on color, texture or material in the design process far outweighs the challenges of learning a new workflow."

Once the company has created the 3D asset, there are applications for use throughout the remainder of the product journey. And brands that don't render a 3D form at the design stage can still create one from the first sample, through solutions like RestAR. Factory partners — or anyone with access to the sample — can film a one- to two-minute video of the physical product, which RestAR then turns into a high-resolution 3D asset.

"The footwear industry is one of the fastest to accelerate the use of 3D, besides furniture and construction," said Shayne Smith, chief business development officer at RestAR. "[When] shoes start off by being created in a 3D program, you become accustomed to seeing the benefits of having a 3D model. The list is quite endless: We're finding new use cases pretty much every other day."



By sharing a 3D product asset on an e-commerce page, retailers can give shoppers a clearer idea of footwear and reduce returns.

CREDIT: COURTESY OF SKETCHFAB

Currently, sharing a 3D file can eliminate the need to ship samples between factory and brand, reducing a brand's carbon footprint and the waste associated with sample production. This can be replicated when sharing samples with prospective buyers:

Once a product has been approved, the corresponding asset can then be used for both wholesale and DTC selling.

This is particularly useful right now, when retailers and consumers are buying predominantly through online channels. But more broadly, the growth of e-commerce suggests that investing in the online customer experience will be important for brands to maintain long-term success. Bridging the gap between the online and offline shopping journey is a focus for many companies right now, and 3D models could be a way to help close it further.

"Real-time interactive 3D, especially coupled with augmented reality, is the closest you can get to the actual object," said Alban Denoyel, co-founder and CEO at 3D asset company Sketchfab. "A digital twin is the ultimate way to represent something. It not only provides better visual information for the consumers, but it is also more engaging where all other media formats are passive."

The prevalence of 3D software throughout the product creation journey, and the positive response from consumers, suggests that it is here to stay. And while there may be resistance to the implementation of new technology, experts argue that this is an investment that need not be cost prohibitive, nor labor intensive.

"I would recommend being OK with starting small," said Denoyel. "I see brands who think they need a virtual version of their entire catalog from the start. But it's OK to start with just 10 or 100 assets and grow from there. It means the upfront investment can be small, yet you can already experiment and get a sense of ROI."

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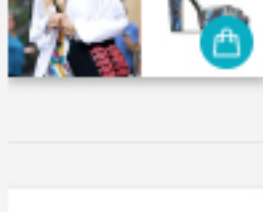
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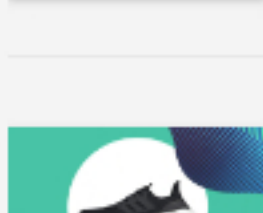
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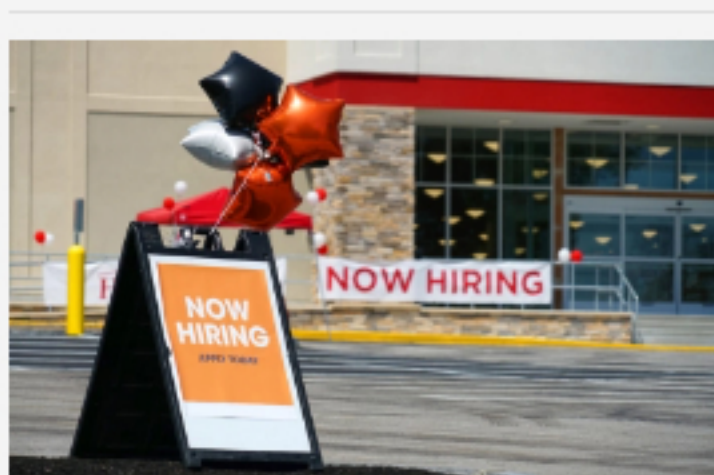
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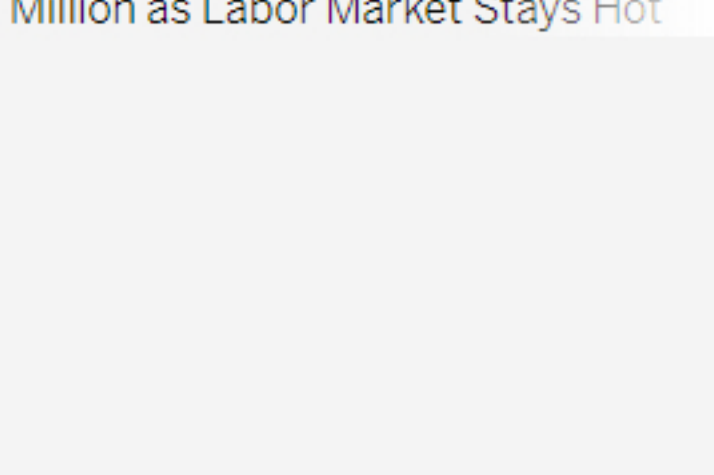
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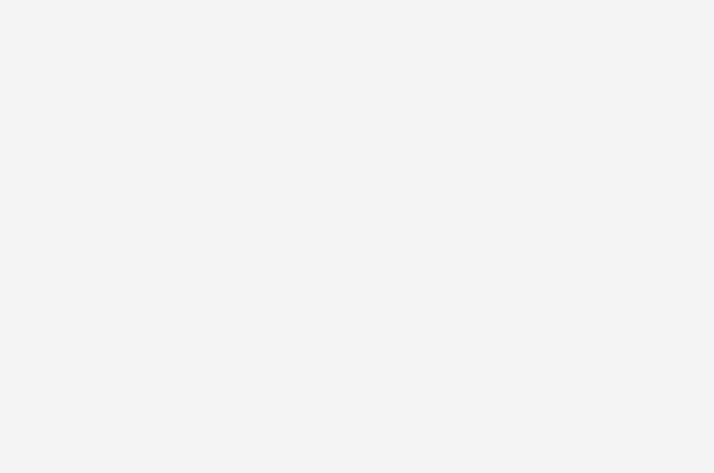
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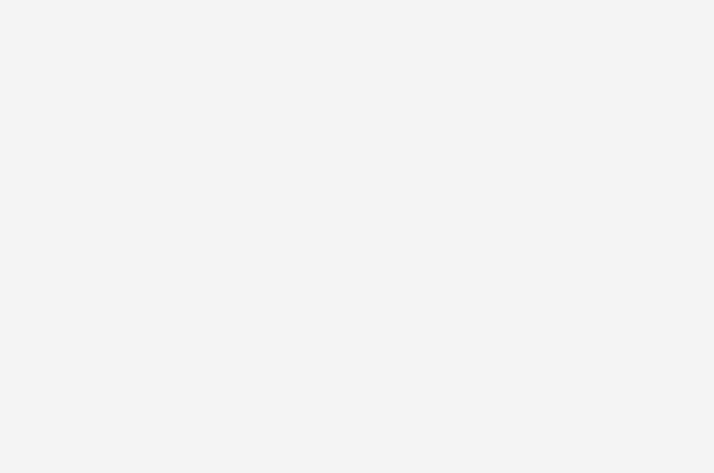
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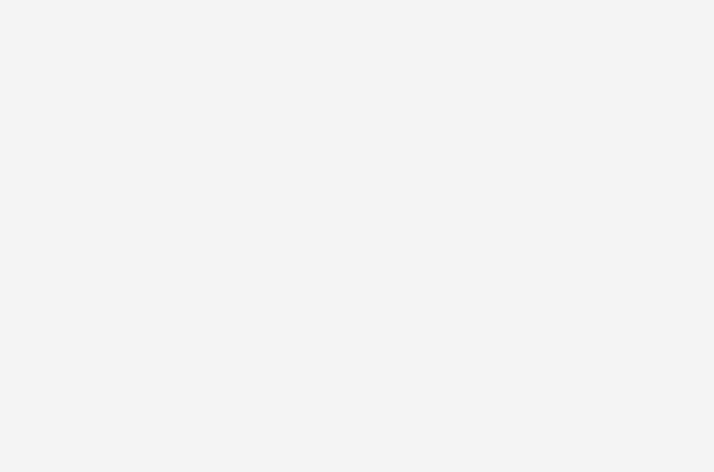
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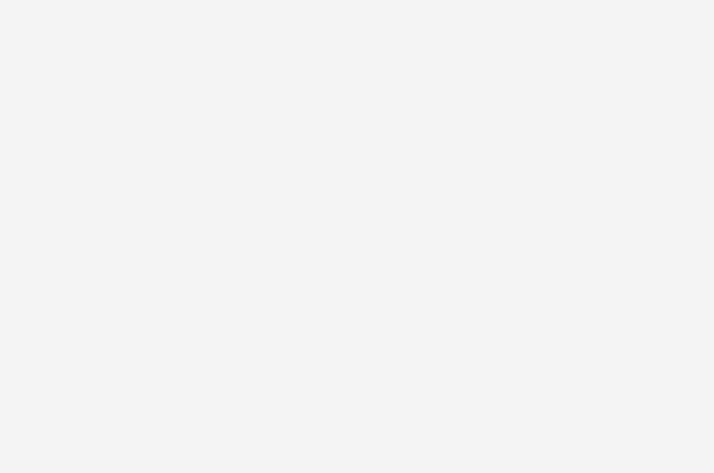
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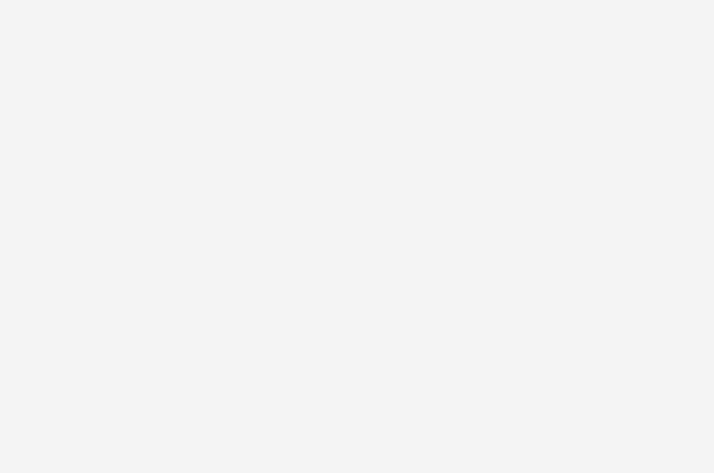
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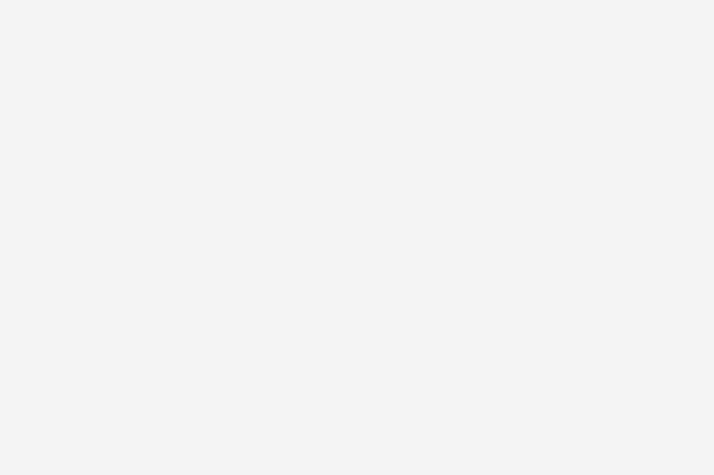
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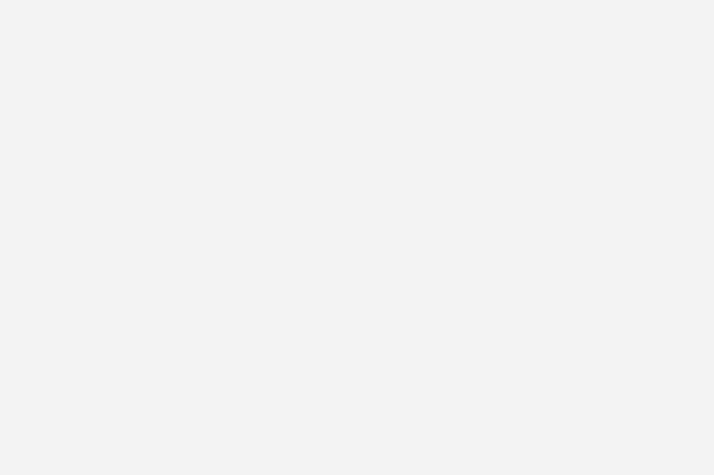
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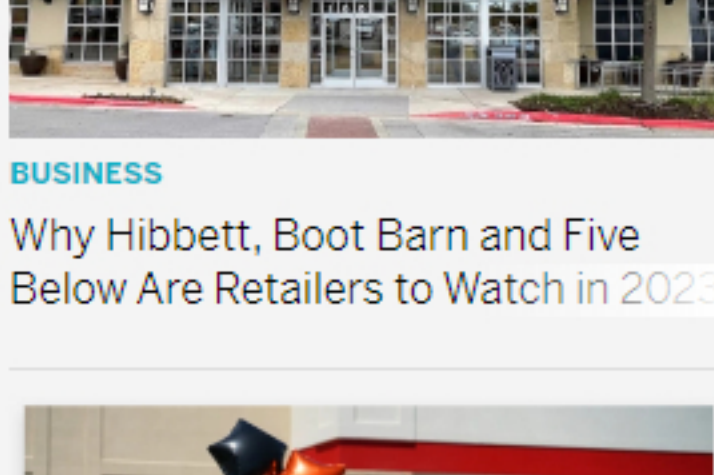
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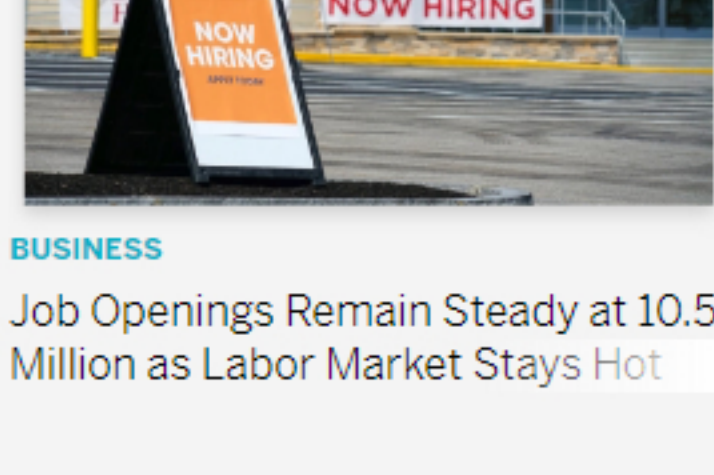
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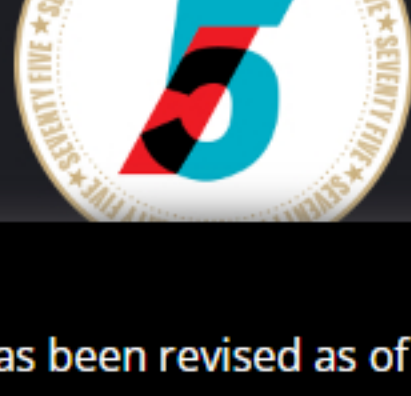
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