
Counterfeits and E-Commerce: Why Even Build It?

Amy Vega opened up her laptop and stared at the email from Jason Larson, her business partner in Hygro, their start-up. Vega and Larson had founded the humidity-detection-device company nine months earlier, just a few months after the global COVID-19 pandemic had started in 2020. The entrepreneurial rush had been unlike anything Vega had ever experienced. Raising seed capital, hiring a small staff, and bringing her vision from whiteboard to fruition had been incredibly exciting. Things had seemed like they were lining up. The pandemic had pushed sales online, the primary place Hygro hoped to sell. The company was about to start contract manufacturing the first large batch of its flagship product and formally launch the new brand, but Vega was uncertain how much to order. That depended on the scale of Hygro's launch and whether the company would sell its products on Amazon or solely on its own site.

Larson's email made his view clear. "I'm not sure what the debate is," he wrote. "We have to sell on Amazon. It's over a third of the US online market. And besides, we've got salaries to pay. We've got investors who want to see a return. Remember the whole global-domination vision? Bringing health and hygrometry to the masses? The scale we're after can only be found on platforms like Amazon."

Vega was less sure. The research she had done on Amazon and similar e-commerce platforms had given her pause. Many sellers were complaining bitterly about the effects of counterfeiting on their business. Some talked about death spirals resulting from poor product reviews, lower prices, and squeezed margins.

The problem seemed to be getting worse. A 2018 report by the US Government Accountability Office found that 20 of 47 items purchased on popular e-commerce sites were counterfeit.¹ Gartner found in a 2018 study of 321 brands offered on Amazon by third-party merchants, one-third of the products had received at least one review by a customer reporting it as fake goods.² Counterfeits were growing at 15% per year and were estimated to be \$1.82 trillion in 2020.³ Worst of all, Vega thought, high-tech devices like Hygro seemed particularly susceptible to counterfeit.

Vega stared at her screen trying to figure out how to respond to Larson. On the one hand, she thought, Larson was right. The scale they were after resided at Amazon. And global domination had been their vision. But Vega wondered if they shouldn't be careful what they wished for.

¹ "Intellectual Property: Agencies Can Improve Efforts to Address Risks Posed by Changing Counterfeits Market," United States Government Accountability Office report, January 2018, <https://www.gao.gov/assets/gao-18-216.pdf> (accessed Feb. 7, 2022).

² Jeff Bercovici, "Small Businesses Say Amazon Has a Huge Counterfeiting Problem. This 'Shark Tank' Company Is Fighting Back," *Inc.*, April 2019, <https://www.inc.com/magazine/201904/jeff-bercovici/amazon-fake-copycat-knockoff-products-small-business.html> (accessed Feb. 7, 2022).

³ <https://www.inc.com/magazine/201904/jeff-bercovici/amazon-fake-copycat-knockoff-products-small-business.html>.

This partially fictional public-sourced case was prepared by Stephen E. Maiden (MBA '01), Case Researcher; Vidya Mani, Associate Professor of Business Administration; and Doug Thomas, Professor of Business Administration. The protagonist and her thoughts were created for pedagogical reasons. It was written as a basis for class discussion rather than to illustrate effective or ineffective handling of an administrative situation. Copyright © 2022 by the University of Virginia Darden School Foundation, Charlottesville, VA. All rights reserved. *To order copies, send an email to sales@dardenbusinesspublishing.com. No part of this publication may be reproduced, stored in a retrieval system, used in a spreadsheet, or transmitted in any form or by any means—electronic, mechanical, photocopying, recording, or otherwise—without the permission of the Darden School Foundation.* Our goal is to publish materials of the highest quality, so please submit any errata to editorial@dardenbusinesspublishing.com.

A Plan Is Hatched

The idea to launch Hygro branched back to Vega's childhood and her struggles with a cough that wouldn't go away. When she was 11, Vega's parents brought her to multiple doctors, who finally determined that her asthma and itchy eyes were related to a mold allergy. Where did the mold come from? This was the first time Vega learned the term *hygrometer*—a tool that measured the amount of water vapor in a confined space. Vega learned that if the humidity in a room was above 55%, mold could form, damaging those who breathed it in. If a room's humidity was under 35%, people could suffer from dry or cracked skin, nosebleeds, and flu-like symptoms.⁴ Her family bought an early version of a digital hygrometer and quickly discovered that the humidity was too high in her house, especially in Vega's basement bedroom. When the family bought a dehumidifier, the problem quickly disappeared.

After studying engineering in college, Vega had worked at a series of start-ups, learning the ins and outs of product manufacturing, marketing, and product launch. By the age of 28, Vega sought to try her hand as an entrepreneur. When she surveyed the ideas she might put her energy behind, her brush with the hygrometer resurfaced.

She knew there were millions who were as sensitive to humidity as she was and who couldn't identify the root of their allergic symptoms. Vega thought she could create a sleek device that measured humidity and link it to an app on people's phones. She envisioned partnering, in time, with a humidifier manufacturer or integrating with Google Home, or with houses' central heating and cooling systems. The global humidity-sensor market was valued at \$901.7 million in 2018 and was expected to grow at a compound annual growth rate (CAGR) of 7.8% from 2019 to 2025.⁵

Vega had attended numerous industry conferences to understand the market and supply chain for the sensor market. In these conferences, she found presentations and exhibits by well-established industry players like Robert Bosch GmbH, GE Sensing and Inspection Technologies, and Honeywell Sensing & Control that sold high-end sensors and instruments in the business-to-business (B2B) market.⁶ The business-to-consumer (B2C) marketplace was highly fragmented—a large percentage of the companies therein were private. The most critical part of Hygro was the sensor chipset, the brains for the instrument. Vega found contract manufacturers in China, Germany, and the United States that were willing to produce Hygro's product—also called Hygro—with the precision and quality standard that she was looking for. She also quickly determined that she needed to get a trademark to protect the intellectual property (IP) behind Hygro.

Vega began her market research on competitors by looking through the Alibaba website and came across a humidity sensor called a “Smart home automation egg incubator.” The product seemed like an early version of her own vision. There was the round form factor she preferred, the color options. There was a Bluetooth-enabled element and a phone app. The product was offered for \$12 per piece (for a 100-piece minimum order) with shipping costs of \$2.12 per piece.⁷ Next, Vega searched Amazon's site and found a similar product.⁸ It

⁴ “How To Use a Hygrometer,” One Hour Heating & Air Conditioning, October 23, 2014, <https://www.onehourheatandair.com/largo/about-us/blog/2014/october/how-to-use-a-hygrometer/> (accessed Feb. 7, 2022).

⁵ “Humidity Sensor Market Size, Share & Trend Analysis Report By Type (Absolute Humidity Sensor, Relative Humidity Sensor), By End Use, By Region, Competitive Insights, And Segment Forecasts, 2019–2025,” Grand View Research, September 2019, <https://www.grandviewresearch.com/industry-analysis/humidity-sensor-market> (accessed Feb. 7, 2022).

⁶ Market Research Future, “Global Humidity Sensor Market Is Predicted to Reach USD 1551.4 Million by 2025 Recording a 6.30% CAGR,” GlobeNewswire <https://www.globenewswire.com/news-release/2021/02/25/2182306/0/en/Global-Humidity-Sensor-Market-is-Predicted-to-Rreach-USD-1551-4-Million-by-2025-Recording-a-6-30-CAGR-Market-Research-Future.html> (accessed Feb. 15, 2022).

⁷ “Smart Home Automation Egg Incubator Temperature Humidity Sensor, Digital Thermometer Hygrometer for Incubator,” Alibaba, https://www.alibaba.com/product-detail/Smart-home-automation-egg-incubator-temperature_60736363537.html (accessed Feb. 7, 2022).

⁸ “Govee Bluetooth Hygrometer Thermometer, Temperature Gauge Humidity Meter, App Alerts, Free Data Export Storage, Up to 500 Days Battery Life, 230ft Connecting Range for Humidor, Greenhouse, H5174,” Amazon, <https://www.amazon.com/Govee-Bluetooth-Hygrometer-Thermometer-Greenhouse/dp/B08JLNXLVZ/> (accessed Feb. 16, 2022).

wasn't an exact replica of the Alibaba merchandise, but Vega wondered if the manufacturers of the item listed on Alibaba had altered their products. She had read that manufacturers found on Alibaba would negotiate on prices, particularly with higher volumes. So while the product on Amazon was listed only a few dollars more (\$16.99) than the \$14.12 (including shipping) item that could be bought on Alibaba, Vega suspected a volume deal would be even more profitable. Was the Amazon item a counterfeit, she wondered? She filed the thought away and kept researching.

Vega determined that the products on the market were good, but was convinced that her vision was significantly better and a step-change forward. Emboldened by her market research, Vega partnered with Larson, a college friend who had a business background. The two of them pooled their savings, wrote a business plan, and formed a limited liability company (LLC). She would always remember the euphoria (and terror) she felt when she quit her job to follow her entrepreneurial dream. Vega and Larson pitched the idea to friends and family and were able to raise the \$250,000 they believed would get them past their launch. After that, they hoped to raise more money from an angel or venture capital group based on having a product in the market. Vega set about hiring two programmers and partnered with an outsourced design team. After six months of late nights forming the prototype of the app, many weeks of product testing and refinement, and long hours spent pulling together the marketing language, website, and instruction manual, Hygro was ready for market.

The next question filling Vega's mind was how to sell it. She'd always figured she and Larson would sell the product on their site and through big platforms around the world like Amazon, Alibaba, eBay, and Mercado Libre. The possibility of scaling her vision only seemed possible if she sold on Amazon, the world's biggest online retailer. Larson had been pushing to focus their limited advertising budget on the US market first, and he was correct that Amazon controlled about one-third of the entire US e-commerce market.⁹ Vega knew she needed to figure out how to sell on that platform first, so she began a deep dive into selling on Amazon.

Amazon: More Than Just a Book Company

By 2017, Amazon had strayed far from Jeffrey Bezos's initial vision to create "the world's largest bookstore." Founded in Bezos's garage in Bellevue, Washington, in 1996, Amazon had passed many important milestones in its corporate history over the previous 21 years. In its first two months in business, the company sold books in all 50 states and 45 countries. In 1997, the company listed its shares for \$18 on the NASDAQ using the symbol AMZN. The fourth quarter of 2001 was Amazon's first profitable quarter—it had proved it could be a survivor during the dot-com bust that began in 2000.

But soon, Amazon would become known for an ability to think outside the box, initiate new business lines, and disrupt old markets. Amazon would principally become a data-driven business that used customer information to improve the user experience in a range of services.

Amazon Prime, which began as a flat fee for two-day shipping in 2005, morphed over the years to include benefits such as video and music streaming and free e-book rentals.¹⁰ While trying to build out its own infrastructure, Amazon realized it could offer cloud services to other companies as well, fundamentally transforming the IT industry in the process. Amazon Web Services (AWS) was launched in 2006 and grew to become the global industry leader in infrastructure-as-a-service, with about 40% of the market. AWS also became Amazon's most profitable business. Amazon Advertising began with key hiring in 2008 and grew into one of the largest online advertising businesses in the world, helping companies to sell more, boost traffic, or

⁹ Cardiff Garcia and Pamela Boykoff, "How Amazon's Counterfeit Products Threaten Safety," *The Indicator from Planet Money*, January 14, 2020, <https://www.npr.org/2020/01/14/796296810/how-amazons-counterfeit-products-threaten-safety> (accessed Feb. 7, 2022).

¹⁰ Adam Levy, "Amazon Is Not a Retail Company—At Least Not Anymore," *Motley Fool*, October 8, 2017, <https://www.fool.com/investing/2017/10/08/amazon-is-not-a-retail-company-at-least-not-anymore.aspx> (accessed Feb. 7, 2022).