

SHELF CONFIDENCE

Season 6, Episode 2: Dynamic Pricing with Tanvi Surti of Luca Software

[Intro] Hello, and welcome to Shelf Confidence, a podcast brought to you by the Pennsylvania Food Merchants Association that focuses on trends and innovation in the food and beverage industry. I'm Larissa Newton, your host, and today I have the pleasure of welcoming Tanvi Surti, co-founder and CEO of Luca Software, an AI-powered dynamic pricing and promotional engine for grocers.

Luca was co-founded by Tanvi and Yonah Mann, who worked together on Uber's dynamic pricing team. Using a retailer's historical sales and inventory data, as well as competitor signals, Luca can forecast the sales performance of products at different price points.

Consumers have become increasingly budget conscious, and we've seen a lot of headlines recently about retailers announcing reduced prices on thousands of items. Having worked closely with retailers on their pricing strategies, Tanvi offers a unique view on how businesses can ensure a balance between profitability and consumer satisfaction.

[Larissa] Thanks so much for joining us today, Tanvi.

[Tanvi] I'm excited to be here.

[Larissa] So in your view, what are the key factors contributing to the increasing budget consciousness among consumers today?

[Tanvi] That is a complicated macroeconomic question. I think for that we need to go back a few years, just around when Covid was starting and the impact it was having to supply chain. There was a very sharp increase in costs for both retailers, and grocers, in particular, were deeply impacted.

As a result, grocers did what any business person would do, which is essentially proportionally pass those costs down to the end consumer, creating an across-the-board sharp price increase for consumers for essential goods. Particularly when it came to groceries. And during the pandemic year, with low interest rates, low travel spending, etc., consumers

essentially shrugged their shoulders and said, OK, if this is what it takes to get my grocery cart filled, I'm going to do it.

That, coupled with the fact that the government was subsidizing — especially in the U.S., so not so sure globally — especially in the U.S., the government was giving away money to end consumers, spending power overall just felt like it was a little bit higher. Now fast forward a few years — interest rates are up, the Fed is taking a very cautious approach on inflation, the government has stopped subsidizing peoples' paychecks, spending overall has gone up with people back in the office and commute and travel. Consumer willingness to pay has just gone down. And that has been true across the board. You especially see that on luxury products.

But when it comes to essentials like groceries, consumers have now become a lot more aware. And I would say that this is a phenomenon specific to the last 12 to 24 months. Consumers have become a lot more aware about what they're putting in their shopping cart. That has created a shift towards like discount shopping, a shift towards looking for great deals and being a lot more conscious about how much your weekly shop is costing you.

And I think it is just a little bit of a reversal of and unfortunate inflation and spending we saw during Covid.

[Larissa] So you touched on this a bit, but how have these trends impacted the food and beverage retail industry specifically?

[Tanvi] Yeah. I would say that it was a mixture of two things. One is for reasons outside of their control, the food and beverage industry had to increase prices to maintain their margins. Between 2020 and 2022, as we talked about, supply chain plus increasing logistics costs made it necessary for grocers to increase prices.

[Larissa] And so what strategies should they be considering to balance that need for affordable prices for consumers with profitability for the business?

[Tanvi] Yeah, this is a great question. So I'll answer this question in two ways. One is what is the strategic approach a grocer needs to take? And secondly is how do you actually tactically execute that strategic approach and translate that strategy into prices on your shelves? On a strategic basis, prices don't exist in isolation. As we've discussed in over the last five, 10 minutes, prices have to be taken in context of the larger economic environment, the consumer spending, and purchasing power.

So, prices usually are a reflection of a dozen different parameters at any given time, which are interest rates, costs, competitor behavior, weather, socioeconomic factors — so if you are an end consumer like what are average salaries — availability of the product — so like supply chain health and how much produce and how much product is on the shelves. And

essentially all of these parameters play a role in essentially what a consumer is willing to spend.

Oh, and sorry, one I didn't mention, which is the most important one, is elasticity. Like what is the customer sensitivity to a price increase or decrease for that particular SKU? So the right strategic approach for a grocer making pricing and promotion decision is multi-dimensional. You have to look at a dozen different parameters to create one piece of output, which is a price that goes on a price tag.

Now, if that sounds complicated, it is complicated. And the best companies in the world — and I used to work at Uber, where I used to lead the pricing team — the best companies in the world like Uber, Amazon, Walmart, have armies of data scientists and economists and engineers that are building very complicated machine-learning models that enable these companies to take these dozen or so parameters and convert that to the right price, which is the right price for the consumer at the business. The average grocer or the average convenience store doesn't have that capability.

So how do you take this like strategic approach and convert it to tactical decision making? And that's where companies like mine — I'm the co-founder and CEO of Luca, we are an AI-powered pricing engine — that's where we come into play. We build custom machine-learning models that are informed by the work we've done at Uber that take all of these parameters for the grocers, train a machine-learning model and output a price at a SKU, category and store level that is the right price for the business's objectives and what consumer appetite there is to pay for that specific product.

What I would encourage grocers who are thinking about a strategic shift in pricing to do is step one, take a deep look at how you're making pricing decisions today. If you're doing cost plus margin type pricing in a spreadsheet, know that you are leaving a lot of money on the table and you're making some serious mistakes. Take some time to strategically think about what other factors you need to be accounting for while making pricing decisions. And as step two, look at solution providers like ourselves that are able to automate and build these systems for you. Because, candidly, the grocers, the mid-sized grocers who are dealing with this problem today don't have the technical resources to be able to execute.

[Larissa] So can you discuss any success stories where personalized pricing has led to increased customer loyalty and satisfaction?

[Tanvi] Yeah, absolutely. So, my company works with a myriad of grocery and CPG companies across the U.S. One of our customers is an online grocer in California called Good Eggs. They don't have any physical presence. They do essentially online ordering, checkout and home deliveries for high-quality organic produce, snacks and meal kits in California. Prior to working with us, they took a very standard approach to pricing, which was a mixture of

cost-based pricing with essentially a shifting cost profile across different suppliers they had. And they were making pretty manual decisions across the thousands of SKUs they were selling.

In addition to all the value left on the table with over and under pricing, this was also very manually intensive for them. So they were spending tens of hours on a weekly basis, monthly basis, making pricing and promotional decisions where someone was literally sitting in a spreadsheet and deciding prices at a SKU level.

When they started working with Luca and adopted our pricing engine, we did a couple of different things for them. (And this kind of maps the approach we take with any customer we work with.) We started with ingesting all of their data. So we looked at three to four years of historical sales history, promotions, consumer behavior. We looked at COGS, we looked at inventory. We looked at products they sell. We looked at what their competitors were selling similar or identical products at. And we built out a machine-learning model that ingested all of that data.

We, as a result, were able to produce price plans that got them to specific revenue margin and profit targets that they needed and were able to automate it such that they were getting a price output out of our system on a weekly cadence. The impact of moving from static, spreadsheet-based pricing to this machine-learning powered, dynamic pricing approach that was a competitor and elasticity aware is massive improvement in margin profile for this business.

I won't share the exact numbers because it's specific to their business, but essentially they were able to create very meaningful margin output that they were then able to use to put back into their business.

Now there is a short-term margin output that's measurable, but there is a long-term consumer loyalty output that you asked about that will show up on a longer time horizon. And the way that shows up is your consumers are indexing very heavily on prices of certain products — bananas, eggs, bread, milk, for example. Our ML model is able to identify the role of each SKU in your product catalog and use the customers' price sensitivity to that SKU to find the right price. So you never want to be overpriced on bananas, but you may have room to be overpriced on a meal kit, for example. That is a premium product on your platform, which is where you make the margin back that you gave up on bananas. So being able to do that kind of SKU level arbitrage has been deeply impactful, not from a margin perspective, but also from a consumer price perception perspective, which would have long-term customer loyalty benefits for this business.

[Larissa] So earlier in the conversation, you talked about the different factors that go into creating a price. So what are those socioeconomic and ethical considerations that should

be made when it comes to implementing dynamic pricing?

[Tanvi] Yeah. That's a great question. So, when we start working with the grocer at Luca, one of the first exercises we do is split up their business into price zones. Now, if it's a medium-sized grocer with, let's say, sub 20 stores in a specific region, usually you're talking about one to five price zones. If it's a larger national-size grocer, maybe you're talking about hundreds of price zones. Each price zone is a cluster of stores which share the same price as the name suggests. And you're giving yourself the flexibility for having different prices between different price zones.

Now, the reason to carve out these price zones is you're essentially making an estimate that all your consumers in that cluster of regions share a similar socioeconomic background or share similar spending behaviors. Another factor would be something like, oh, this cluster has a certain density of competing grocery stores or convenience stores. So just to give you a very simple kind of tried example like San Francisco downtown might be one price zone because it has a high density of grocery stores. But the suburbs of Fremont here in California might be a different price zone because there are fewer grocery stores around.

Once you identify those price zones, our model looks at socioeconomic data within that geo. It looks at density of grocery stores. It looks at density of population. And it looks at like kind of age demographic. Like, is this a younger urban population, office goers, or is it an older retiree population? And we're able to pull socioeconomic data like average salaries and so forth.

All of that data gets put into our machine-learning model. And the reason I keep kind of falling back to the machine-learning model is there isn't a formula in a spreadsheet somewhere which says, like, if average salary equals x , then do y . The power of machine learning is you can feed dozens, if not even hundreds, of different data points like socioeconomic data and age data and interest rate data and weather data, and train this model as if it's a pricing brain which has knowledge of everything pricing related about your business.

And that brain is able to create a probabilistic output of what is the right price to get you the best output for your business. So our job as like people training these machine-learning models is to find the right data sets and feed it into the system, and then the system is able to look at all these different considerations and make a pricing decision, which will vastly outperform any human with a spreadsheet spending hours and hours of it because the machine learning model is able to look at all of these different factors in combination, as opposed to looking at any of these data points in isolation.

[Larissa] So that's actually a really nice segue into my next question about the role of AI and, you know, how do you see it evolving in the grocery industry over the next five to 10 years?

[Tanvi] Yeah, absolutely. So, this is, so it's just a little bit of context on me before I answer that question. I'm a startup CEO in San Francisco with other AI companies that are springing up by the day in the dozens around me, building some really, really cool tech. And I've seen how powerful AI has been able to be in diverse industries, from like copywriting to marketing to legal to back office accounting processes.

So I can tell you from what I am seeing in the tech companies that are building around me that AI is going to fundamentally change not just the grocery industry but how we operate in any kind of domain, both in the consumer and work setting.

Having said that, I spend my time thinking about grocery and grocery problem spaces. And I've come to realize that in grocery AI can be an imprecise, and often right, but sometimes wrong, mode of interaction. And I've come to build the mantra that, like, our tech needs to be human-steered and AI-powered. And the human-steering part cannot go away and I don't expect it to go away in the next five years, because at the end of the day, human operators are the ones interacting with consumers, having conversations with suppliers, getting to see the nuances of their business that AI, which is a probabilistic model, will never fully capture. So when it comes to my business and the platform I'm building, we are building a highly configurable system where humans can override any decision, but the AI will kind of do smart things in the background and produce recommendations with the human as the decision maker eventually.

So how I see AI transforming grocery is the best companies will deploy AI to remove overhead to save time to do complicated processing. Like what we were just talking about with pricing, having to look at like 24 different signals to make a recommendation. But humans are not going to go away anytime soon because human operators at the end of the day will have nuanced context, which means they're always going to have control of the steering wheel.

So as I think about grocers, and I speak to a lot of grocers at conferences, etc., my advice to them, as they're evaluating AI solutions, is one be skeptical. Don't get overexcited by companies that are overpromising what automated AI can do and how they will be able to replace other human operators.

And two, make sure that you're being context specific. So, for example, AI is not going to be able to do stuff like, I don't know, deciding what products you need to sell in your store. That is always going to be a human decision. But AI might be able to do dynamic pricing type optimization. So be context specific and think of AI as a supplementary tool and not as a replacement.

[Larissa] Great. Well, thank you so much for sharing all these really valuable insights with us today. Before we wrap up, do you have any final thoughts or advice you'd like to share

with our listeners?

[Tanvi] Yeah. I think as I spend more and more time... Over the last two years, I've really gotten to know the grocery industry having no prior experience or knowledge in the space. And I have been really impressed with grocery CEOs and executives about how open they have been to adopting technology to create efficiencies in their system.

Pricing, promotional decisions and vendor management discounts are a space that I feel that most grocers are underinvesting in. So my last thoughts, as I kind of go deeper into that space and like understand the grocery industry, is that there is a ton of margin and a ton of growth opportunity that is available like on the margin of like of how you are pricing your SKUs and your products.

And like the 50 cent changes and the 25 cent changes and like small-value products can have meaningful, multiplicative output on your P&L. So my last thoughts, having like worked with all the grocers I've worked with, is don't underinvest in your pricing decisions. There is a ton of margin hiding in there, and don't think that it's possible to manage this over spreadsheets by hiring people. You need smarter systems that are looking at more signal to be able to make the right decisions for you here. And it's an area I feel like more grocers need to invest in.

[Outro] If our members are interested in learning more about Luca Software, you can find their website at www.askluca.com.

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Until next time, I'm Larissa Newton and this is Shelf Confidence.