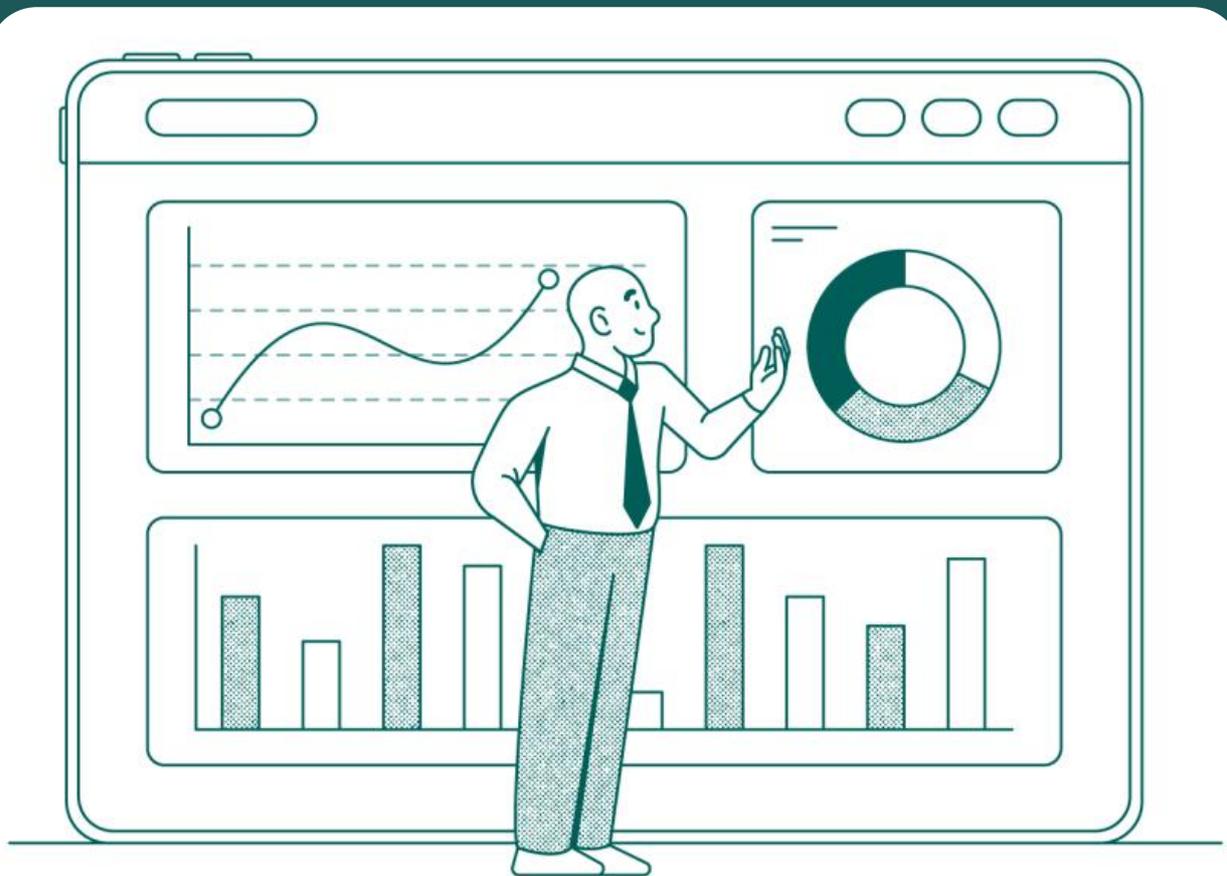




Dynamic Pricing policies and AI models for the E-commerce industry



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Overview

Dynamic Pricing Ltd. is a company that provides an innovative AI-powered solution for advanced data-driven automation. The company helps businesses facilitate pricing optimization and helps them handle their inventory, product demand, supply, and price elasticity.

With 25 pricing experts, including several PHDs in mathematics and statistics and 25 clients with revenue from \$10M to \$500M, Dynamic Pricing AI is a fast growing technology company with business goal oriented solutions and tools.



Simeon Lukov
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PhD Math - Optimization
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Demir Tonchev
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Dynamic Pricing Ltd. has two main types of policies. The first type being self service rule-based models with an “IF-THEN” event logic, used and proven by a myriad of industries like apparel, fashion, pharmacy, DYI, consumer electronics, grocery, perfumes and cosmetics.

The second type are out-of-the-box AI pricing models that facilitate fast-reinforcement learning, multi-arm bandit and the Nobel prize award-winning model the “Efficient Frontier”.

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1. Demand – Availability policy

Balance between average demand per period and the current stock availability. Control product availability and showcase more items by increasing your margins

Formula:

IF demand > 25 AND supply < 150

Action:

Increase price by 4.5 %

Assumptions

- Demand per period in absolute value or average numbers.
- Stock availability is given as the number of pieces in stock or as an expected number of available items for an expected range.

Example

Let's say that demand for your perfumes increases but you only have a limited amount in stock while waiting for the next shipment. This policy helps you then to increase your margins so that you sell a little bit less but with higher profits.



2. Cross-country policy

Localizing prices of international merchants from the headquarter level. Including features like currency conversion and % price difference between the headquarter and the international business

Formula:

Based on home market Set prices for country Apply currency conversion

Based on home market Set prices for country Apply currency conversion

Assumptions

- A multi-tenant policy that acts based on information about the home market and countries of operation.

Example

Example: Say you operate out of the USA as your home market, and you would like to define your strategies for the Canada and Mexico markets. This policy will allow you to define features like currency conversion and the % price difference between the headquarters and your international business.



3. Price – Conversion optimization policy

Apply pricing rules based on your page visits and sales data. Tap into higher margins opportunities whenever you have good conversion rates. Sell more units when traffic is high and the customers' perceived value is lower than the products' current prices.

Formula:

If Visits Yesterday $>$ 300 and Sold Yesterday \geq 5

Action:

align with min price of Apple Competitor $-$ 2 %



Assumptions

- The required data for this policy is page visits, sales, and competitor's data

Example

You run a marketing campaign for a new game-changing product on your market and you get visits but sales are not coming in. Now, this policy helps you decrease the price to test and validate if sales will start increasing.



4. Clearance on last pieces

Use it to clear products after certain amount of days

Formula:

IF Inventory days are > 90 AND Stock availability is > 20 pieces

Action:

Set markup to 15 %

Assumptions

- Inventory items in stock and inventory days

Example

You have a lot of 3-year-old TVs in stock, and a new player comes in on the market with a brand-new TV set that sells well. This policy allows you to organize a clearance campaign on all your products that have been in stock longer than a certain period.



5. Competition policy

Generate repeat customers by improving price perception. Align your prices with the market

Formula:

Select competitors group: Laptops × Monitors × Computers ×

Action:

Fixed value ▾

-5 %

Margin guard

Fixed value ▾

Min:

50

Max:

150



Assumptions

- Competition pricing data of identical or similar products

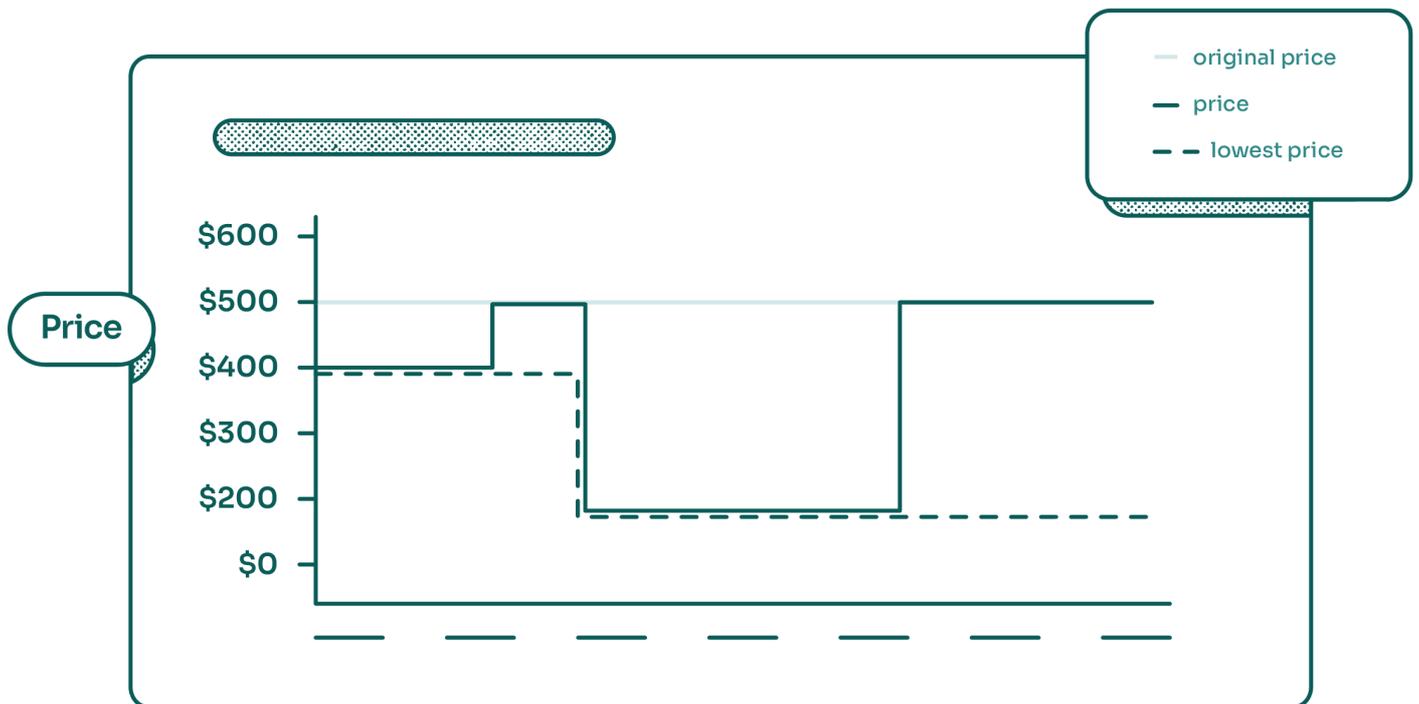
Example

You want to sell alcohol 2% lower than your competition, you follow your competitor prices to act accordingly.



6. Omnibus pricing – compliance policy

You want to sell sneakers and make a promotion for a certain collection. You have decreased the prices several times during the past month. We save the omnibus price each day and give you recommendations for the price decrease percentage.



Assumptions

- This policy is applied based on your geography while staying compliant with your local market regulations.



7. Demand-based multi-pricer

The Nobel prize award winner helps you navigate the profit-revenue balance on a macro business level for each product category.

Formula:

Extract data for:

Last 6 months ▾

Level of aggregation:

Category ▾

Action:

Mix: 75% Revenue / 25% Profit ▾

Margin guard

Fixed value ▾

Min:

50

Max:

150



Assumptions

- You provide historical orders data. You know the business rules for each category like margin guards. You reprice whole categories for your business goals.

Example

You are selling beverages for revenue, nuts for 80% profit and 20% revenue, milk products for 50% revenue and 50% profit.



8. Price Explorer AI

AI price elasticity framework. Test demand on several prices and optimize for revenue or profit.

Price offset

Num. prices Step Rounding

CURRENT PRICE

Pricing preview

<input type="text" value="\$49.99"/>	<input type="text" value="\$54.99"/>	<input type="text" value="\$59.99"/>	<input type="text" value="\$64.99"/>	<input type="text" value="\$69.99"/>

Campaign period

Start date Start time End date End time

Change frequency

Every Period

Assumptions

- You need to test the price elasticity of your products

Example

Let's say you sell mid-range jewelry and you want to test pricing on the rings for the young professionals category. You choose a price range and you test if you can sell for 5% or 10% more expensive and you test for about 30 days (depending on the traffic to find out with significant certainty whether you can sell on a higher price)



9. Stock Optimizer

The most sophisticated and superior model that is acting on a category level or optimizing multiple prices simultaneously. It quickly finds the deep optimal policy for a certain objective.



Assumptions

- This model takes into account and consideration your inventory constraints

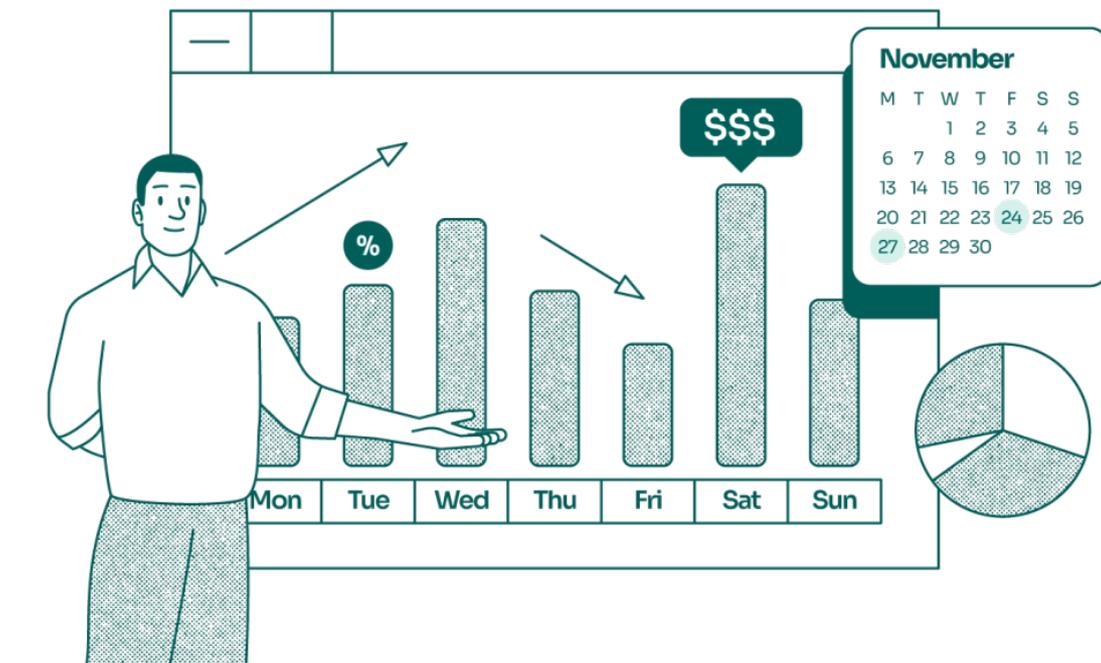
Example

You have 50 dresses but you only sell 3 or 4 of them. The algorithm helps you based on inventory data to find the optimal policy that is optimized for profit, revenue or a mix of both.



10. Adaptive Pricer

Adapt to dynamic markets utilizing contextual data and find the optimal pricing policy towards your business goals



Assumptions

- This model acknowledges: historical orders data, promo, day of the week, competitor prices, seasonality and buyer behavior.

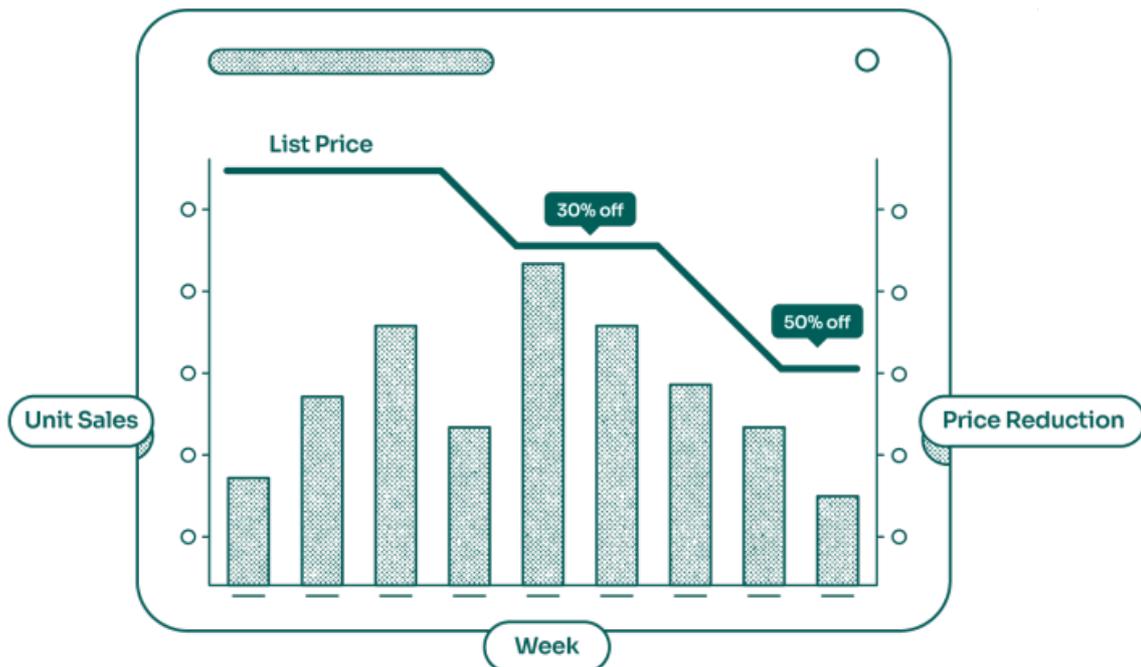
Example

You are selling food supplements and you want to price according to your competitors. The model finds out and adapts in a way that you have an optimal revenue policy when your prices match competitor A and B and are higher than the prices of competitor C and D.



11. Markdown Runner

This AI optimizing model is used to optimally choose the timing and the magnitude of the discount to get the optimum revenue.



Assumptions

- Historical orders data, fixed inventory, expiration dates, unsold inventory, initial price, historical data

Example

You have in stock 250 women's winter jackets and have four months to sell the items before clearing the shelf (also digital) space. The item will stay on a list price at \$250 for two months and then markdown every two weeks. At the end of the fourth month the left jackets will be sold to an outlet store for \$50.



Process

Data import & preparation

We read different data input feeds: product descriptions, sales data, inventory, and competitors data



Price elasticity estimation

Short-term price elasticity estimation



Compute unit

Our pricing policies kick in and take action to match the strategy of your business

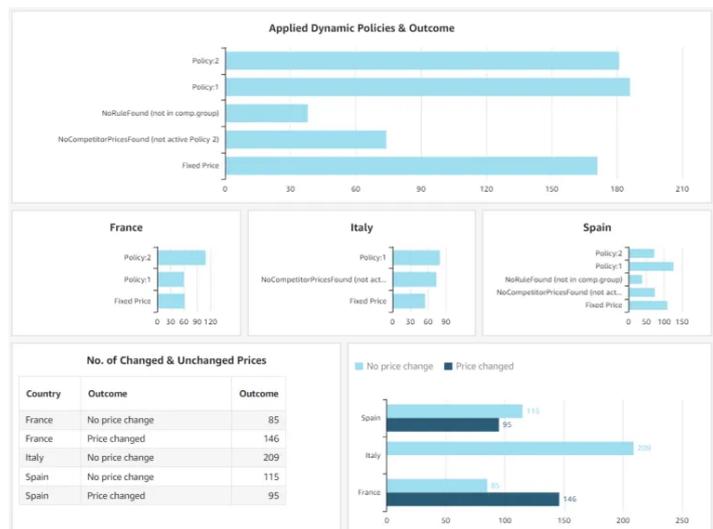
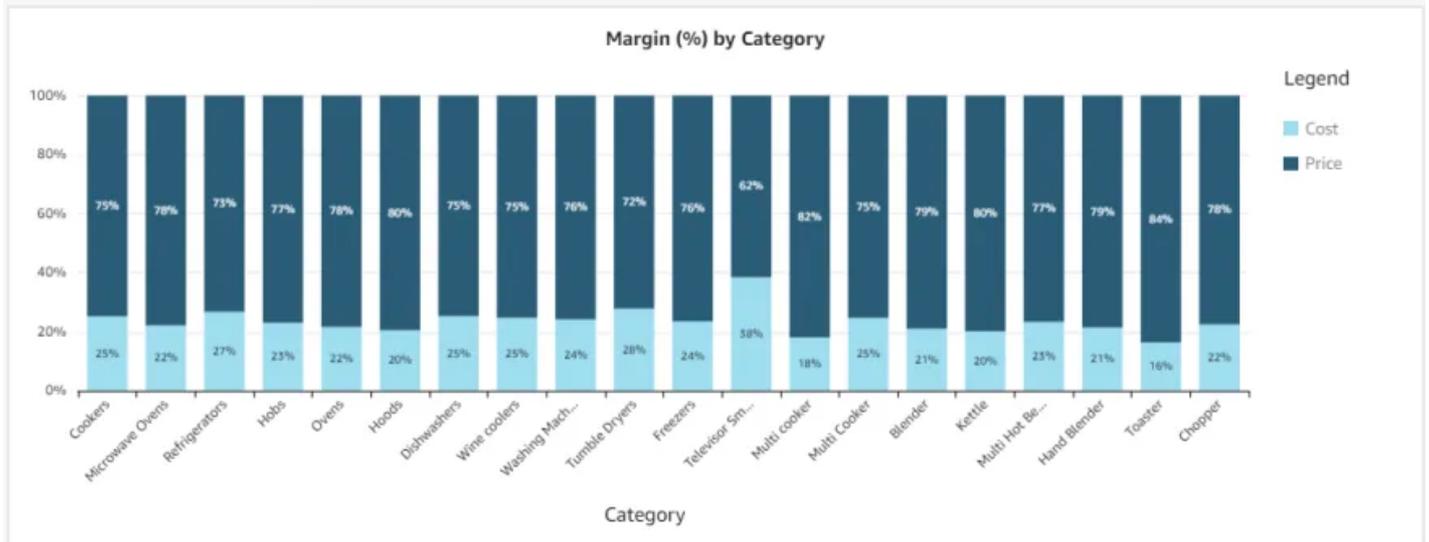


Data export

You get the optimal price for your products that the clients are willing to pay



Dashboards & Reporting



Thank you!



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