

# The Impact of Nexite Recommendations on Product Sales



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# Abstract

**Goal: Evaluate the direct and causal impact of Nexite recommendations on product sales.**

The analysis examines the results of an A/B testing model and observational data from Israeli clothing stores. It uses item-level daily sales data to empirically evaluate the effect of adopting Nexite's recommendations on subsequent product sales, holding fixed all other channels and covariates.

All analyses were carried out personally by me, following the description of the experiments as provided by Nexite. To the best of my knowledge and expertise, this set of results provide valuable evidence to answer the four research questions below.

## Presentation Outline

- Abstract
- Research Questions
- Nexite Definitions
- Summary
- Tests and results
- Qualifications



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# Research Questions

1. Does Nexite's sales growth come from identifying the root causes of slow-sellers and taking corrective actions, or is Nexite simply selecting successful styles that would have increased sales anyway?
2. Do zero-sellers that increased sales following Nexite actions, result simply because time has passed, or because Nexite has correctly identified the root cause of the problem and what's needed to sell more?
3. When Nexite recommends to “move” items from low-traffic areas to high-traffic areas, what happens to items then moved to low-traffic areas, and is the total impact in revenue positive?
4. Is the sales increase for items Nexite “moved” generated simply because they were moved, or because Nexite correctly identified the right traffic needed for them? ( VM team compared to Nexite recommendation)



# Nexite Definitions

1. **What is a Zero Seller?** A Zero seller refers to a style that had no sales over the course of a week.
2. **What is a Nexite Recommendation?** These are recommended actions to take on merchandise to increase sales for the merchandise or store, based on customer behavior data. Examples include 'move', 'transfer', 'display/remove from display', and 'promote' (recommend to shoppers via store staff).
3. **What is accepted vs declined Nexite Recommendation?** Accepted Nexite Recommendations are those recommendations from Nexite that are implemented in the relevant stores. Declined Nexite Recommendations are those which are not implemented in stores.
4. **What is a high traffic (hot) area vs low traffic (cold) area?** High traffic (hot) areas are the areas on the sales floor where merchandise receives the most exposure to customers. Low traffic (cold) areas are those where merchandise receive the least exposure to customers and are 'seen' the least.



# Summary

Given the data description provided by Nexite and my analysis, I conclude that:

1. Nexite recommendations have a significant positive effect on item-level sales and reduce the likelihood of a product being zero seller.
2. The increase in revenue from products moved to high-traffic areas exceeds the (potential) loss from reduction in sales of products moved to a cold zone.
3. Implementation of an A/B testing model makes it unlikely that the results are driven by unobserved covariates.
4. Evidence suggests that the Nexite algorithm significantly overperforms recommendations by the VM team.



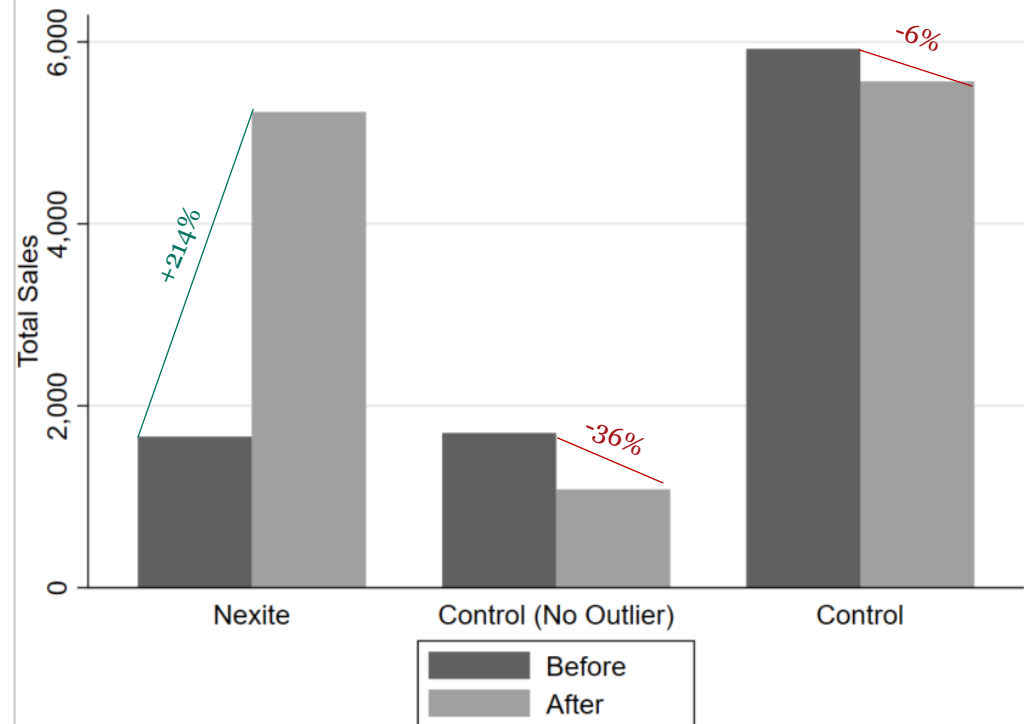
# Question 1: The Direct Effect of Nexite on Product Sales

## Method

- Out of the full recommended action list, half were randomly approved (Nexite group), and half were randomly declined (Control group), in an A/B testing model.
- Correcting for outliers: One product in the control group had abnormally high sales, omitting it balances the pre-treatment sample.
  - The reduction in sales for the control group with no outliers is consistent with sales throughout the entire store during that time period.
- Sales of approved products improve significantly more than declined products.

## Results

|                                                          |              |                                |                         |
|----------------------------------------------------------|--------------|--------------------------------|-------------------------|
| Store: Lululemon, Dizengof<br>Dates: 02/07/24 – 09/07/24 | Nexite Group | Control Group<br>(No Outliers) | Control Group<br>(Full) |
| # Products                                               | 18           | 18                             | 19                      |
| Total Sales Before                                       | 1,660        | 1,699                          | 5,922                   |
| Total Sales After                                        | 5,228        | 1,079                          | 5,566                   |
| % Change                                                 | 214%         | -36%                           | -6%                     |



## Question 2A: The Direct Effect of Nexite on Zero Sellers

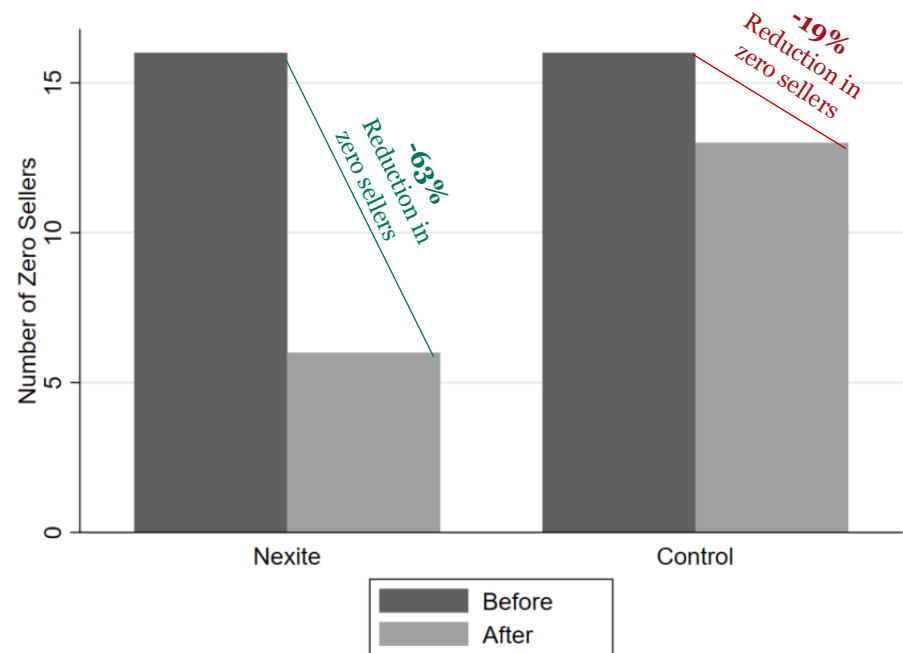
### Method

- Out of the full recommended action list, half were randomly approved (Nexite group), and half were randomly declined (Control group), in an A/B testing model.
- Zero sellers are defined at the weekly level.
- No need to correct for outliers
- Approved products are significantly less likely to remain zero sellers compared to declined products (number of actioned zero sellers drops).

### Results

Store: Lululemon, Dizengof    Nexite Group    Control Group  
Dates: 02/07/24 – 09/07/24

|                       |      |      |
|-----------------------|------|------|
| # Products            | 18   | 19   |
| # Zero Sellers Before | 16   | 16   |
| # Zero Sellers After  | 6    | 13   |
| % Change              | -63% | -19% |



## Question 2B: The Effect of Nexite on Zero Sellers

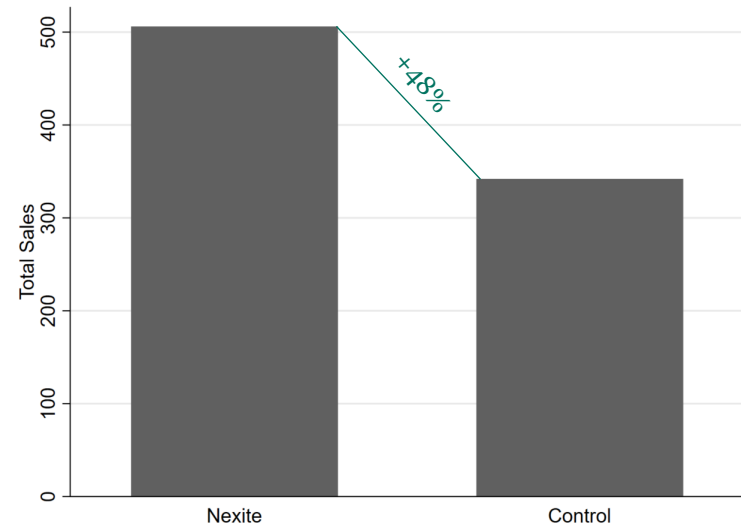
### Method

- Restrict the analysis to zero sellers and compared items that were actioned by Nexite (Nexite group) to those that were not (Control group)
- Zero sellers are defined at the weekly level.
- Caveats:
  - Adoption decisions may be non-random.
  - Changes occurred at different times.
- Zero sellers actioned by Nexite improve sales net 48% more than unactioned zero sellers

### Results

Store: Lululemon, Dizengof  
Dates: 26/03/24-02/07/24

|                       | Nexite Group | Control Group | Difference |
|-----------------------|--------------|---------------|------------|
| # Products            | 247          | 142           |            |
| Per Item Sales Before | 0            | 0             |            |
| Per Item Sales After  | 506 NIS      | 342 NIS       | 48%        |



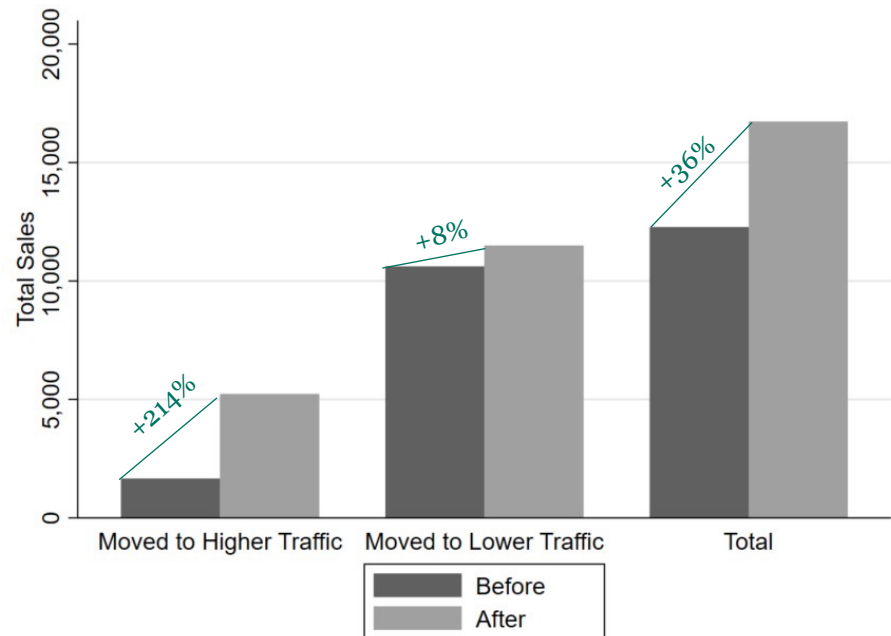
# Question 3: The Direct Effect of Nexite on "Moved" Product Sales

## Method

- Out of the full recommended action list, half were randomly approved (Nexite group), and half were randomly declined (Control group), in an A/B testing model.
- Examine the impact on products that were moved to lower-traffic areas(cold zones) instead of approved products.
- No need to correct for outliers
- The total effect of Nexite on sales is +36%.
- Total store sales at the same time frame *dropped* by 37%.

## Results

| Store: Lululemon, Dizengof<br>Dates: 02/07/24 – 09/07/24 | Moved to Higher<br>Traffic | Moved to Lower<br>Traffic | Total  |
|----------------------------------------------------------|----------------------------|---------------------------|--------|
| # Products                                               | 18                         | 17                        | 35     |
| Total Sales Before                                       | 1,660                      | 10,612                    | 12,272 |
| Total Sales After                                        | 5,228                      | 11,497                    | 16,725 |
| % Change                                                 | 214%                       | 8%                        | 36%    |



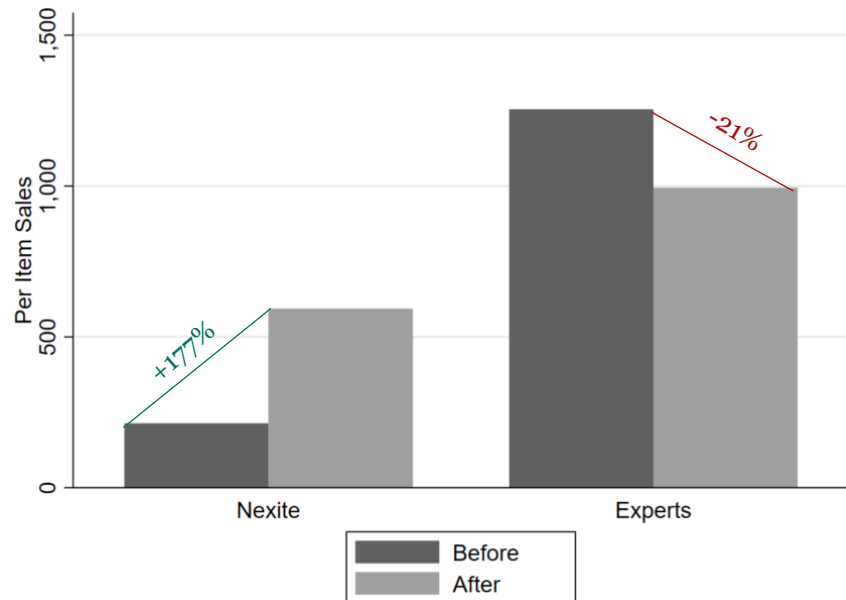
# Question 4: The Effect of Nexite Compared to the VM Team

## Method

- The VM team conducted two changes, one based on Nexite's recommendations (Nexite group) and the other based on the VM team's expertise (Control group).
- Event study design - Comparison of changes without accounting for time trends.
- Caveats:
  - VM decisions are likely non-random.
  - VM and engine changes occurred at different times.
- Data shows VM decisions based on Nexite engine are significantly more impactful on sales

## Results

|                       |              |              |
|-----------------------|--------------|--------------|
| Store: Tommy Hilfiger | Nexite Group | Expert Group |
| Dates: 11-18/02/24    |              |              |
| # Products            | 13           | 49           |
| Total Sales Before    | 2,775        | 61,490       |
| Total Sales After     | 7,708        | 48,683       |
| % Change              | 177%         | -21%         |



# Qualifications

- Dr. Reshef received PhD in Business Administration and Economic at Haas School of Business at the University of California, Berkeley. He is currently employed as a tenure-track Professor of Strategy and Entrepreneurship at the Olin Business School at Washington university in St. Louis.
- He is a member of the Academy of Management and the American Economic Association. In his capacity as a professor, he teaches multiple courses in business and economics at the undergraduate, MBA, and PhD levels. He has also worked with several large technology firms, including Yelp and Wayfair.
- His research focuses on competitive strategy and business economics, with a focus on the digital economy and platform strategy. His work has been published at top academic journals such as the American Economic Review, The Review of Economics and Statistics, and Management Science. It has also been covered by popular media, such as The Economist, Financial Times, Business Insider, Globes, and N12.

