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How Manufacturers Can Grow Profitably Using Item Stratification

SMART INVENTORY INVESTMENT
THAT DRIVES TOP LINE REVENUE
AND BOTTOM-LINE PROFIT

How Manufacturers Can Grow Profitably: Smart Inventory Investment That Drives Top Line Revenue And Bottom-Line Profit

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Introduction

Today, manufacturers are challenged by intense pressures on their businesses – rising interest rates and costs and fluctuating market demand - while still addressing weaknesses in their supply chain structures and inventory investment strategies that were exposed during the COVID disruption.

In such churning seas, the temptation is great to simply fall back to the age-old mindset of customer fulfillment and sales-at-any-cost to stay afloat and wait out the rough waters. However, such a path is not a sound strategy. It may even further exacerbate the fragility of a company's financial condition by perpetuating a cycle of eroding inventory ROI, margins, and net profit.

This Guide introduces a concept called item stratification, which is a methodology that defines strategies that promote increased demand to grow top line revenue, margin, and EBITDA. Item stratification ensures those strategies are aligned with effective inventory investment policy while not sacrificing customer fulfillment. While not a new concept, item stratification is just as relevant today as it ever has been - perhaps even more so in this current economic climate. Today, it has never been more imperative to deploy already strained resources to where they can be most impactful.

The methodology discussed in this Guide is just one approach to item stratification—it's not the only approach. Fundamentally, it is based on methods developed and promulgated by the Council for Research on Distributor Best Practice (CRDP), an alliance between the National Association of Wholesaler-Distributors, and Texas A&M University's Industrial Distribution Program. E&A has modified the CRDP model with the addition of certain factors that align it more closely with manufacturing operating environments.

CHAPTER 1

Item Proliferation – An Unintended Consequence

Many SMB manufacturers disproportionately skew the importance of top line revenue growth over other equally important business goals.

The mandate in such strategies is to meet the widest latitude of customer demand possible. This means having products readily available, either in stock or via just-in-time sourcing, to strike a deal when the iron is hot. In such sales systems, the cardinal sin is lost sales due to not having readily available products to meet most any demand.

Pursuing such unipolar sales strategies will often result in the unintended consequence of item proliferation. This normally manifests itself by the carrying of bloated inventory values and the maintenance of complex supply chain structures.

Item proliferation can be an underlying root cause for many of the ills plaguing a manufacturer, including extended lead times and declining inventory ROI, margins, and EBITDA due to skewed investment in underperforming inventory assets and increased sourcing and cost to serve expenses. And contrary to the justification for deploying such strategies in the first place, eventually, flat top line revenue growth - or worse, decline - may occur as lost sales opportunities are experienced at an increasing rate as:

- Investment resources become scarcer
- Customer fulfillment is exposed to disruption risk as supply chains become ever more fragile because of their evolving complex structures.

Jonathan Byrnes, senior lecturer at MIT and founder of Profit Isle, provides shocking insight into the relationship cultivated between profit generation and inventory investment because of item proliferation. His analytical experience has shown that:

- 20% of sales activity generates 150% of profit
- 30% of sales activity erodes half of profit
- 50% of sales activity generates minimal profit, but consumes over 50% of company resources

By any measure, basing success on sales alone is a losing formula. Manufacturers need to build sustainable enterprises that drive sufficient liquidity to reinvest back into their business. Therefore, manufacturers need to embrace holistic strategies that will satisfy demand and grow top line revenue while ensuring those strategies are aligned with effective investment strategies that will maximize return.

Item stratification is one such methodology that helps align sales and investment strategies by illuminating the comprehensive contribution of inventory to a company's growth and profit generation.

CHAPTER 2

Item Stratification: Fundamental Concepts

Item stratification analysis assesses inventory items' potential to generate revenue and profit.

The inventory items are ranked against each other as to this potential, greatest to least. With this insight, effective inventory investment and sales strategies can be devised to maximize revenue, profit growth, and inventory ROI, while ensuring customers the highest level of service and fulfillment.

According to their ranking, an inventory item would fall into one of the four quadrants within the following Item Ranking Matrix:

Revenue Potential	D	C	B	A
A	DA	CA	BA	AA
B	DB	CB	BB	AB
C	DC	CC	BC	AC
D	DD	CD	BD	AD

Profit Potential

An item that ranks at the top for both profit and revenue potential would fall in the "AA" category. An item that ranks third for profit potential and first for revenue potential would fall into the CA category. The significance of each quadrant as to strategy making is as follows:

- **Green: Critical Items.** The green quadrant represents items that are critical to the business. The demand and revenue are high for these items, and they are the most significant contributors to generating profit for the company. Investment and sales strategies should favor these items and further exploit their advantages to the company.
- **Blue: Exploit Items.** Blue quadrant items produce high revenue and/or have high demand but generate low profit. Continued investment in these items is justified only if price, acquisition costs, and/or cost to serve can be modified to improve their profit generation potential without sacrificing the demand for the items.
- **Orange: Target Items.** These items aren't in high demand. They produce low revenue but generate high profits. Items in this quadrant represent the opportunity to drive growth if effective sales and/or pricing strategies can be implemented to stimulate demand.
- **Gray: Non-Critical Items.** The gray quadrant represents items that are marginal in terms of both profit and revenue generation. These items are candidates for elimination in the company's investment and sales strategies because they siphon off sorely needed investment capital that could be used to procure higher performing inventory assets.

To arrive at the ranking that determines an inventory item's placement within the Item Ranking Matrix, an item is assessed against the following performance KPIs:

Revenue Potential

Sales
- Revenue $s

Demand
- Hits (Won + Lost)

Profit Potential

Contribution
- Gross Margin $s
- Gross Margin %
- Gross Margin ROI

Cost to Serve
- $ Order Size
- Yield per Pick
- % Returns
- % Same Day Delivery / Will Call

Supply Chain Throughput
- Supplier Leadtime
- Internal Leadtime

- Items are scored based on how their performance compares to the other inventory items within each respective **Performance KPI criterion**.
- Their scores are then weighted to reflect their influence and importance in driving overall performance within each respective **KPI Grouping** whereby each **KPI Grouping** receives its score.
- **KPI Grouping** scores are then weighted within their respective **Revenue Potential** and **Profit Potential** categories to arrive at a combined score for each category.
- Based on this combined score, an item is designated as an A, B, C or D item in each category. Based on this final A, B, C, D designation, an item is assigned to the quadrant in the Item Ranking Matrix that corresponds to its designation within each of the two categories. Appendix I presents a graphical representation of this modeling process. Appendix II presents a detailed explanation of the measure and scoring for each of the **Performance KPI criterion**. Appendix III contains charts depicting the scoring and weighting measures used in the modeling.

CHAPTER 3

Item Stratification: Challenges

Item stratification modeling may be challenging to perform for some organizations, especially in the beginning.

However, as data reporting structures are improved, implemented, and maintained, these challenges should mitigate over time.

The guiding rule to follow is to avoid complexity in the model, which can undermine the credibility of the results of the analysis. Complexity can also increase the effort to perform the analysis, where it can neither be performed in a timely manner nor within the frequency needed to keep strategies current and relevant.

If a performance KPI cannot be reliably reported upon, it can be omitted until the proper reporting structure is put in place. It can also be replaced with a KPI of a similar nature that can be reliably reported upon.

Following are some areas of complexity that can affect the reliability of the item ranking calculations in item stratification modeling.

Scoring and Weighting Values

Admittedly, assigning the scoring and weighting values used in item stratification modeling is a subjective exercise. Ideally, the values used should reflect the nuances and particular dynamics of a company's sales and operating environments.

Although the scoring and weighting values presented herein represent a sound starting point, they should not be interpreted as being applicable to all sales and operating environments. If the A, B, C, D designations seem to be disproportionally skewed, this is an indicator that scoring and weighting values may need to be revised.

Performing the Analysis at the Local Level

Item stratification modeling should be performed at the local level; ideally, completing a model for each warehouse location in a branch or in a region. The database structure of a company's sales analysis and/or general ledger chart of accounts will determine the level of difficulty involved in capturing an inventory item's performance at the local level.

In many companies both sales analysis and the general ledger must be used to identify the local level associated with a transaction. In these cases, it's necessary to have a cross reference between the two databases so that the entirety of the inventory item transaction can be captured. This cross reference is usually accomplished by use of a sales or product code embedded in the transaction. The code enables the association of the relevant sales information found in sales analysis with the division or region designation used in the sales transactions' postings to the general ledger.

Determining Lead Times

Ultimately, the reliability of an ERP's calculated lead times will be determined by the depth of its capability in processing and managing:

- multi-level bills of material
- procurement sourcing tracking
- material issuance
- production operating run time cycles

For ERPs of limited capability in any of these areas, or if the ERP has not been operational long enough to calculate reliable lead times, an alternative is necessary. The next best alternative is an ERP that supports the entry of a user-defined lead time in the item's inventory master record. If that capability exists, lead time values can be entered based on a manual analysis of the inventory item's historical sourcing lead time trends.

Determining Reliable Cost to Serve (CTS)

CTS relates to assessing how high maintenance an item is to process for sale, from procurement to selling. CTS exists in the realm of Soft Costs in the "below the line" section of a profit and loss statement.

Although some CTS may be capitalized to inventory to some degree as part of indirect costs or burden allocations, it is difficult to infer a direct relationship between any of these costs and any particular inventory item. For this reason, certain KPIs are used in the item stratification model to infer a CTS level associated with an inventory item.

The model presented here uses the KPIs of $Order Size, Yield Per Pick, %Returns, and %Same Day Delivery or Pickup. However, if KPIs exist upon which more reliable inference can be made, those can be substituted for any of the above KPIs.

Determining Reliable Gross Margin

It shouldn't be difficult to determine how much dollar revenue an inventory item generates. However, determining an item's true cost can present challenges.

Gross margin can be reliable as an indicator of an inventory item's contribution to profit generation only if all significant costs to acquire, refine and produce the item are accurately captured in the right proportions. Otherwise, the item's true contribution may be distorted.

Discussing the inaccuracies involved in calculating reliable cost of goods sold can be an expansive conversation. In this Guide, the conversation is kept to a high level and focuses on three areas to which many managers will relate:

Standard Cost vs Actual Cost. There are competing schools of thought as to whether cost of goods sold is more accurately determined by capitalizing inventory cost using an implied standard cost or by charging the actual cost incurred to acquire, refine, or produce an item.

It is not the purpose of this Guide to debate the merits of either capitalization method. However, the following observation is offered for consideration. If significant purchase price or production variances result from capitalizing inventory at standard costs, then the reported gross margins per item are not as accurate as they are purported to be.

Capitalization of Indirect Cost and Burden. The practice of capitalizing indirect costs and burden to inventory is justified by the pretense that the practice provides a full cost for an item and presents a more accurate measure of an item's "true" profit contribution. At least in theory, there are several potential weaknesses in applying this capitalization method that may result in a distortion of an item's true profit contribution.

- Any approach used to reclass "below the line" costs to inventory is an arbitrary allocation based on presumptions that may or may not accurately reflect how these costs actually move through the procurement and/or production processes.
- If a significant allocation variance results, it is indicative of inventory being over or under stated because of the allocations. Further, the cost of goods sold that flows out of inventory will be misstated as well.
- Even if no significant allocation variance results, there is no objective way to validate that the right costs are being allocated to the right inventory items in the right proportion.

Freight Costs. Freight has become a significant acquisition cost in the purchase of inventory. In many companies, freight is the most expensive cost incurred to acquire an item. Consequently, capitalizing freight cost to an inventory item in the correct proportion is critical to determining accurate gross margin per item. There are different scenarios wherein freight cost capture inaccuracies occur, however, they derive essentially from the same root causes.

- The ability to accurately associate purchase orders with the freight cost incurred.
- The ability to reasonably apportion the freight cost among all items on a purchase order.
- The degree of variance at the PO line item level between assumed freight capitalized and actual freight cost incurred.
- The amount of time that transpires between inventory receipt and validating the actual freight cost incurred.
- An ERP's capability to support adjusting inventory item cost to account for freight cost variance after its purchase receipt is received.

Limitations or degree of error in any of the above areas will impact the reliability of the calculated gross margin per inventory item.

CHAPTER 4

What Item Stratification Can Do For You

Insights derived from item stratification modeling are integral to defining effective investment and sales strategies.

Insights derived from item stratification modeling are integral to defining effective investment and sales strategies that help companies pivot from the mere defensive position of struggling to hold onto market share to proactively garnering greater market share with increasing velocity at higher margins. It is a cornerstone in promoting growth without sacrificing liquidity and in building shareholder value.

When combined with customer stratification, item stratification helps companies identify the optimum product and customer sales mix that best aligns with their core competencies. These stratifications together also integrate pricing optimization and sales strategies that can successfully promote and bring that sales mix to market.

Because item stratification helps to define integrated, harmonized investment and sales plans, companies become more proactive and effective in:

- Negotiating and winning sales on terms better aligned to its self-interests and goals
- Mitigating inventory obsolescence
- Increasing inventory ROI and turn
- Accelerating the sales cycle
- Maintaining supply chains of less complexity and of greater throughput bandwidth
- Setting benchmarks and goals that support better daily decision making

Item stratification modeling helps to illuminate many of the sources of underperformance in a manufacturing company. In addition, companies that utilize item stratification gain soft benefits that are just as important. Management teams will feel more secure when they're making decisions that affect the company's profitability based on solid data insight as opposed to intuition. Customer satisfaction will also be improved because of more effective order and fulfillment processes.

Item stratification is a powerful tool that has benefits for all the stakeholders in a manufacturing company's operation.

The Big Picture: The Key To Success For Manufacturers In Today's World

Manufacturers face a variety of challenges. The intense cost pressures under which many manufacturers are operating make it difficult for them to deploy solutions to these challenges.

Item stratification shouldn't be a difficult methodology to adopt. But due to the cost to manually onboard the process, or limitations of legacy tech stacks, or a lack of know-how and experience as to how to best exploit technology, for many manufacturers it is difficult, and they cannot avail themselves of its benefits.

That's why it is imperative for manufacturers to ally themselves with the right technology partner who can not only provide them access to the right technology but can also **teach them the key business concepts underlying the technology and support them in deploying and exploiting it to their maximum benefit.**

Having the right technology partner as a resource and trusted advisor is the best path for manufacturers to cost effectively scale, leverage, and deploy effective solutions for smart inventory investment.

Item Stratification Model – Graphical Representation

KPI Criteria			KPI Grouping			Potential Category			Item Ranking Matrix
KPI	SCORING	WEIGHTING	GROUPING	SCORING	WEIGHTING	CATEGORY	SCORING	A-B-C-D DESIGNATION	
Revenue $s	30		Sales	30	**50%***	Revenue Potential	20.00	C	
Hits (Won/Loss)	10		Demand	10	**50%***				
Gross Margin $s	30	**25%***	Contribution	28	50%			BC	Target
Gross Margin %	40	**25%***							
Gross Margin ROI	20	**50%***							
$ Order Size	20	40%	Cost to Serve	29	33%	Profit Potential	29.27	B	
Yield per Pick	30	30%							
% Returns	40	20%							
% Same Day Delivery / Will Call	40	10%							
Supplier Leadtime	30	**50%***	SC Throughput	35	17%				
Internal Leadtime	40	**50%***							

* Weighting values are intentionally different between this table and those appearing in Appendix III for the purpose of illustrating a more representative score skew.

Explanation of KPI Measure & A-B-C-D Scoring

Revenue $s

- Gross Revenue earned by an item expressed in dollars during a selected period range
- Presumption being, the greater the Revenue $s, the greater demand for the item in the market
- Scoring: Ordered from highest to lowest, based on where the item places in the running cumulative % of total revenue of all items:
  A Top 60% **B** Top 80% **C** Top 90% **D** Bottom 10%

Hits (Won/Loss)

- The number of inquires for purchase of an item during a selected period range
- For an item, this is the sum of the number of closed quotes for sale and lost quotes for sale
- Presumption being, the greater the number of Hits, the greater demand for the item in the market
- Scoring: Ordered from highest to lowest, based on where item's places in the running cumulative % of total hits of all items:
  A Top 60% **B** Top 80% **C** Top 90% **D** Bottom 10%

Gross Margin $s

- Gross Margin earned by an item expressed in dollars during a selected period range
- Presumption being the greater the margin, the greater the item's contribution towards gross profit generation
- Scoring: Ordered from highest to lowest, based on where item's places in the running cumulative % of total GM$s of all items:
  A Top 60% **B** Top 80% **C** Top 90% **D** Bottom 10%

Gross Margin %

- Gross Margin earned by an item expressed as a percent during a selected period range
- Presumption being the greater the margin, the greater the item's contribution towards gross profit generation
- Gross Margin $s & Gross Margin % taken together provides a more accurate assessment of an items gross profit generation potential
- Scoring: Based on how item's GM% compares to the average GM% of all items:
  A >= 150% Avg GM% **B** > 100% Avg GM% **C** > 50% of Avg GM % **D** <= 50% of Avg GM %

Gross Margin ROI

- Gross Margin earned by an item expressed in dollars divided by the item's average inventory held in dollars during a selected period range
- Presumption being the greater the GM ROI, the greater the item's contribution towards gross profit, cash flow & liquidity generation
- GM ROI is an insightful assessment of comprehensive value contribution of an item since it juxtaposes margin against the investment necessary to acquire the item
- Scoring: Based on how item's GMROI% compares to the average GMROI% for all items - Stock Items:
  A >= 200% Avg GMROI
  B > 100% Avg GMROI
  C > 0% Avg GMROI : <= 0% Avg GMROI / Non-Stock Items > 0% Avg GMROI
  D <= 0% Avg GMROI

Explanation of KPI Measure & A-B-C-D Scoring

$ Order Size

- The average dollar value (qty x unit price) per order of an item during a selected period range
- Presumption being the greater the order size, the greater the item's contribution towards EBITDA & the greater the demand in the market
- Scoring: Based on how an item's average per order dollar value compares to the median per order dollar value of all items:
  A >=200% Median **B** > 100% Median **C** > 50% Median **D** <= 50% Median

Yield per Pick ($YPP)

- Total Gross Margin $s divided by the total number of picks of an item during a selected period range
- Presumption being the greater the yield, the greater the coverage of Cost to Serve and the contribution to EBITDA of an item
- Scoring: Based on how an item's average $YPP compares to the average $YPP of all items:
  A >=150% Average **B** > 100% Average **C** > 50% Average **D** <= 50% Average

% Returns

- The dollar value of all returns divided by the total gross revenue dollar value earned of an item during a selected period range
- Presumption being the lower the percent of returns, the lower the Cost to Serve associated with an item
- Scoring: Based on how an item's average return % compares to the median return % of all items:
  A <= 50% Median **B** <= 100% Median **C** <= 150% Median **D** > 150% Median

% Same Day Delivery / Will Call

- The percent of all orders for an item during a selected period range that are designated Same Day Delivery or Will Call
- Presumption being the higher the percent, the higher the Cost to Serve associated with selling the item
- Scoring: Based on how an item's average % compares to the median % of all items:
  A <= 50% Median **B** <= 100% Median **C** <= 150% Median **D** > 150% Median

Supplier Leadtime

- The average number of days of all requisitions for an item between when a PO is issued and received during a selected period range
- Presumption being the greater the leadtime the lesser the profit turnover of an item
- Scoring: Based on average number of days:
  A <= 5; **B** > 5; **C** > 15; **D** > 30

Internal Leadtime

- The average number of days of all work orders for an item between material issuance into work in process and completion into finished goods inventory during a selected period range
- Presumption being the greater the leadtime the lesser the profit turnover of an item
- Scoring: Based on average number of days:
  A <= 5 **B** > 5 **C** > 15 **D** > 30

Scoring & Weighting Charts

Factor Weighting Distribution Chart										
FACTOR IMPORTANCE	NUMBER OF FACTORS									
	1	2	3	4	5	6	7	8	9	10
1	100%	67%	50%	40%	33%	29%	25%	22%	20%	18%
2		33%	33%	30%	27%	24%	21%	19%	18%	16%
3			17%	20%	20%	19%	18%	17%	16%	15%
4				10%	13%	14%	14%	14%	13%	13%
5					7%	9%	11%	11%	11%	11%
6						5%	7%	8%	9%	9%
7							4%	6%	7%	7%
8								3%	4%	5%
9									2%	4%
10										2%
	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Point Values

KPI A-B-C-D
Scoring Point Values

A Items	40 Points
B Items	30 Points
C Items	20 Points
D Items	10 Points
X Items	20 Points
Y Items	10 Points

Category A-B-C-D
Scoring Point Values

A Items	>= 32.6 Points
B Items	>= 25.1 Points
C Items	>= 17.6 Points
D Items	< 17.6 Points

About E&A

We created Earnest with one goal in mind: to drive exceptional business profitability.

More than an implementation, software and advisory firm, we help midmarket manufacturing and distribution companies improve their operational efficiency and bottom-line results by making the most of their ERP technology. Our proprietary software turns off-the-shelf ERP products into powerful workhorses customized to address the intricacies of your business. And with over 45 years of business performance and ERP experience, nobody is better positioned to guide organizations through the challenges of building an operational competitive advantage. At Earnest, we help you see, streamline and profit from your business like never before.

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