



TRAX PERSPECTIVES

Perfecting In-store Execution

The moves consumer goods manufacturers
must make now to win at the shelf



Introduction

Two consumer goods manufacturers, equally well known in the market, launched a range of new soft drink products ahead of the football season. The products had similar flavour profiles and were comparably priced. Yet, one company far outdid the other in terms of sales. The company with the higher sales numbers practises what Trax defines as a “culture of execution excellence”.

At the core of this culture are a few simple questions:

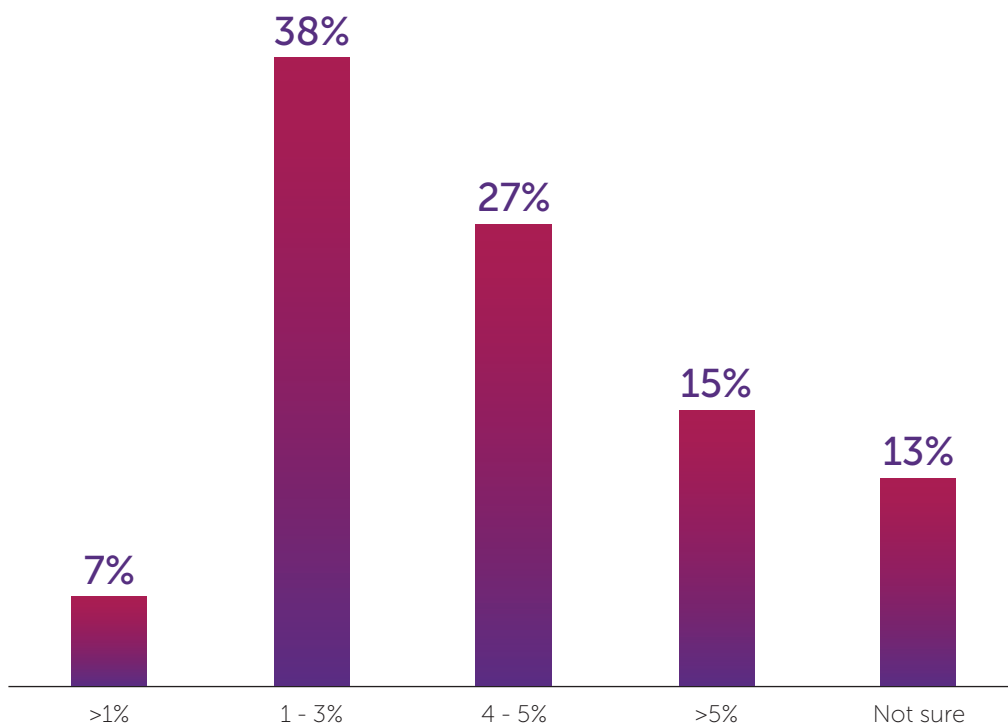
- How can you ensure that your brand strategy and the appearance of your products at store level are well aligned?
- How do you want retailers and shoppers to interact with your brands at the store level?
- How can you conduct an effective and efficient analysis of the competitive environment at the point of sales?
- How can you increase the productivity of your field sales force organization as well as improve the interaction between Field Sales and other teams that have shared ownership of the shelf?

When it comes to the store, winning consumer packaged goods (CPG) companies with a strong culture of execution excellence are better able to turn strategy into action for their shoppers. This means keeping the shopper at the forefront as they create merchandizing directives, preventing frustration from out of stocks (OOS), hard-to-find items or incorrect prices.

But most large consumer goods companies still struggle to see what’s happening on the shelf. Inability to maintain consistent stock levels and stay compliant with the plan plagues CPGs in every category and every country. Store-level execution isn’t slipping, but has not kept pace with the notable progress in supply chain effectiveness either.

On the other hand, those who have a method of monitoring store conditions are unable to move away from a “tracking” mindset to a process of improving strategic execution critical to field sales force discipline and long-term business performance.

When we recently surveyed 300 senior CPG executives, 65% of respondents estimated that their organisations could be losing between 1–5% of annual sales every year due to poor in-store execution and compliance.

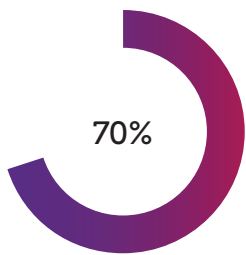


In your estimate, what percentage of annual sales does your organisation lose every year due to poor in-store execution and compliance?

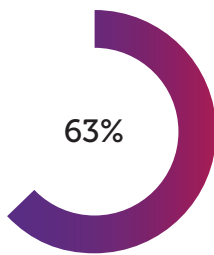


70%

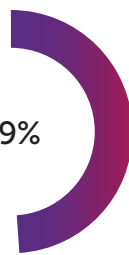
of respondents agree that on-shelf availability and inventory voids still occur on the shelves on a regular basis. The majority also thinks that new items don't make it to shelves at the desired pace at launch.



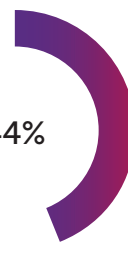
On-shelf availability and inventory voids still occur on the shelves on a regular basis



Speed-to-shelf remains inadequate for many items



Merchandizing resets are unreliably implemented



Promotion and display compliance in store is poor

To what extent do you agree that the below gaps exist today in the consumer goods industry?

% Choosing (Strongly agree, somewhat agree)

This whitepaper explores the state of in-store execution and compliance in the CPG industry today and proposes improvements in this area well beyond what has been possible to date.

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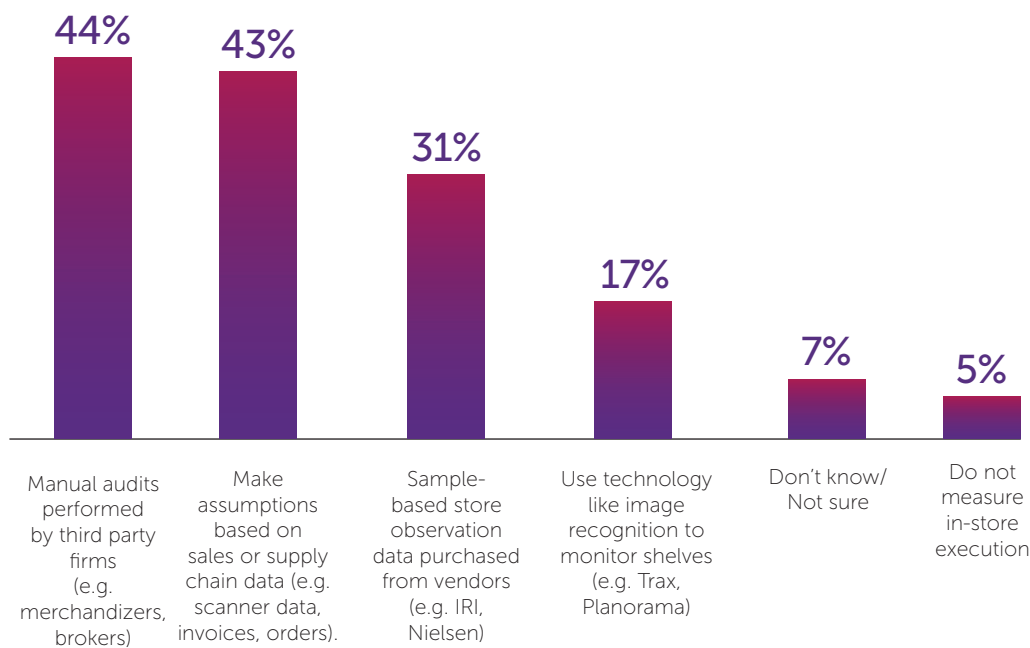
The state of field data collection

The retail environment is very chaotic. There are tens of thousands of moving parts and implementation is often controlled by overworked and sometimes unmotivated people using outdated or sub-optimal processes. Some of the programs that manufacturers and retailers are trying to execute are more sophisticated than 20 years ago, but actual compliance has not got better.

To understand why the shelf is still a bit of a blind spot, it's useful to first look at how in-store conditions

are monitored and what methods are commonly used to collect in-store data.

In our survey, we found that 44% of respondents relied on manual store audits performed by field sales reps, merchandizers or brokers. Equally common is using sales (scanner) or supply chain (invoices, orders) data to estimate the quality of execution. 31% also rely on syndicated retail measurement data that provides some combination of scanning cash registers and manual store audits.



How does your organisation measure in-store execution and compliance?



In an ecosystem still largely using outdated measurement methodologies, it's an encouraging sign that 17% use advanced shelf monitoring technologies like Computer Vision (CV).

Introducing Computer Vision

Computer vision is an interdisciplinary field that deals with how computers can be made to gain high-level understanding from digital images. Using this approach, a series of photographs is taken with a smartphone or tablet camera of the shelf area of interest. The images are transmitted to a cloud-based back-end platform, and then compared to an agreed-upon planogram. Within minutes, the sales representative receives a variance report highlighting all discrepancies.

See how Computer Vision extracts data from in-store images.

Why supply chain or PoS data alone won't do

CPG companies already have a record of what's shipped to stores and when. The problem is, shipments don't reflect consumer behavior at the retail level. A lot can happen between the distribution center and the shelf.

Relying on Point-of-Sale (PoS) data, on the other hand, doesn't give brands an up-to-date grasp of issues like misplaced products, empty spaces and out of

stocks that may be turning away potential shoppers and affecting sales. Further, a 2018 PoS Data Study found that 82 percent of participants had experienced interruptions or issues with their PoS systems, signaling significant room for improvement.

The limitations of manual audits

Manual audits remain costly, time consuming and inaccurate. Field sales teams end up spending more time auditing the store instead of focusing on selling, merchandizing and relationship building.

USE CASE

One client was able to resolve the problems associated with manual audits by using artificial intelligence (AI)-based image recognition technology. The Global Vice President of Commercial Leadership at this CPG giant says, "In the past, we would walk into a store with a handheld computer and painstakingly check the shelves. Today, we take a picture of the drinks on the shelf, which is sent to a server where it gets evaluated, essentially, by AI. The inventory assessment that the photo-recognition technology generates comes back to personnel at retail to make changes. It improves accuracy, reduces

the time in the store and saves money. Before image recognition, the process could cost \$10 to \$100 per store. Now it's \$1."

Yet another client reduced store audit time from 20 minutes to 2 minutes in traditional channels, and from 45 minutes to 15 minutes in modern channels by replacing manual audits with image recognition. This led to increased store coverage from 35 cities to more than 130, and from 28,000 stores to 130,000 stores each month. Companies need to find a way to balance quality and efficiency while growing coverage.



“

Before image recognition, the process could cost \$10 to \$100 per store. Now it's \$1.

Current methods to measure out of stocks and share of shelf

✘ Method 1:

Auditors manually count inventory and use purchase records to determine sales, volume, value and distribution by channel.

This method isn't accurate if the empty space has been filled by another SKU.

✘ Method 2:

Sales data is used to extrapolate what is OOS (i.e. if a product hasn't sold, it is assumed OOS).

This method doesn't take into account other situations that would cause lack of sales.



Image Recognition (IR) Method:
IR identifies all of the products on the shelf and compares it to the planogram to determine if SKUs are missing or misplaced.

IR detects blank spaces, and can report OOS percentage and what specific product should be in the space based on the planogram.

IR also delivers data faster than other data collection methods, making it possible to quickly respond to stocking issues.

Similarly, for share of shelf, auditors typically go by rough estimates. In extreme cases, merchandizers may even use a physical ruler to measure space occupied by the brand. This method is both inaccurate and inefficient due to human error and rounding estimates. Time spent estimating share of shelf takes by far the most time of any step in an audit.

Image recognition identifies all products on the shelf including those of competitors to calculate shelf share. One global FMCG manufacturer observed an average 18% variance between share of shelf measured manually versus IR. The same client in Korea has now reduced the time taken to measure this KPI from 20 minutes to under 1 minute.



The Holy Grail:

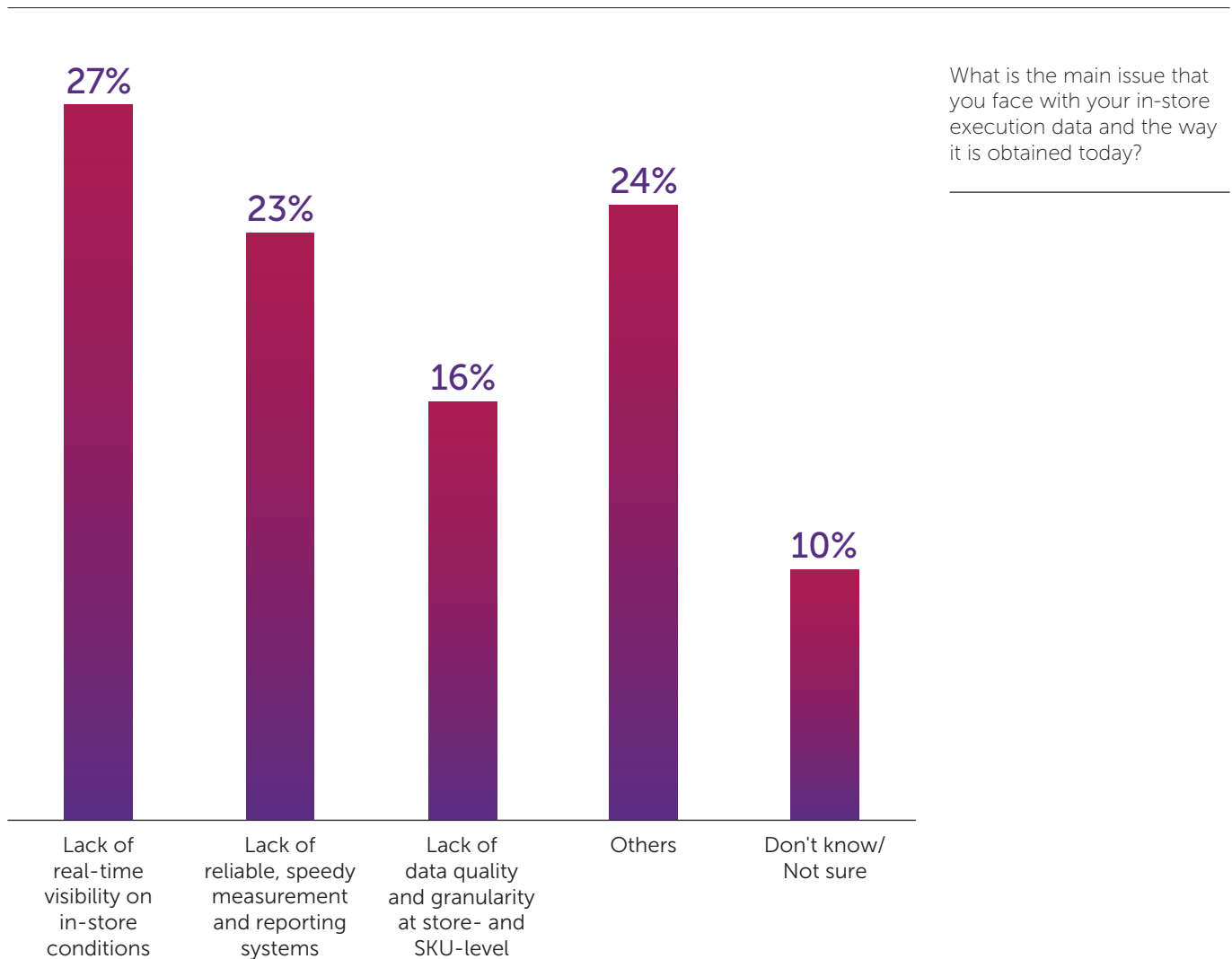
In-store data that is accurate, quickly acquired and easy to scale

On average, field execution representatives who set the shelves for brands are in stores 45 to 60 minutes every few weeks, and responsible for thousands of SKUs. Their ability to systematically and consistently inspect and report on the non-compliant conditions of SKUs they represent is inherently limited.

Our survey uncovered specific challenges in collecting in-store execution data. Very often, data received by brands comes too late, doesn't tell the whole story and the window of opportunity to fix the problem has already passed. 27% of respondents cite lack of real-time visibility into in-store conditions. And a further 23% say that the lack of reliable

measurement and reporting systems is amongst their main issues with in-store execution today.

There is also a need to improve the quality of the data and for it to be more granular, with 16% of respondents identifying this as their main issue. Current methods don't provide the right breadth or depth when it comes to execution data. For example, there is no effective way to understand with confidence how each SKU is executed at the shelf in every store. This issue of poor data quality is especially acknowledged among respondents from developing markets like China and Brazil.



USE CASE

Traditional in-store execution methods weren't working for one beverage manufacturer in Brazil. The process involved too many loops to be closed between field teams and office teams and too much latency in doing so. Either the corrective action didn't get done or so much time passed that the correction was no longer relevant because of seasonality or duration of a promotion. Since there was no way to verify subjective field data, the company was continuing to pay compensation to sales reps based on shipments into the warehouse, not the store.

With Computer Vision-powered retail execution solution, field teams receive clear merchandizing and selling directives in just minutes from capturing shelf images. Nonmobile users, such as



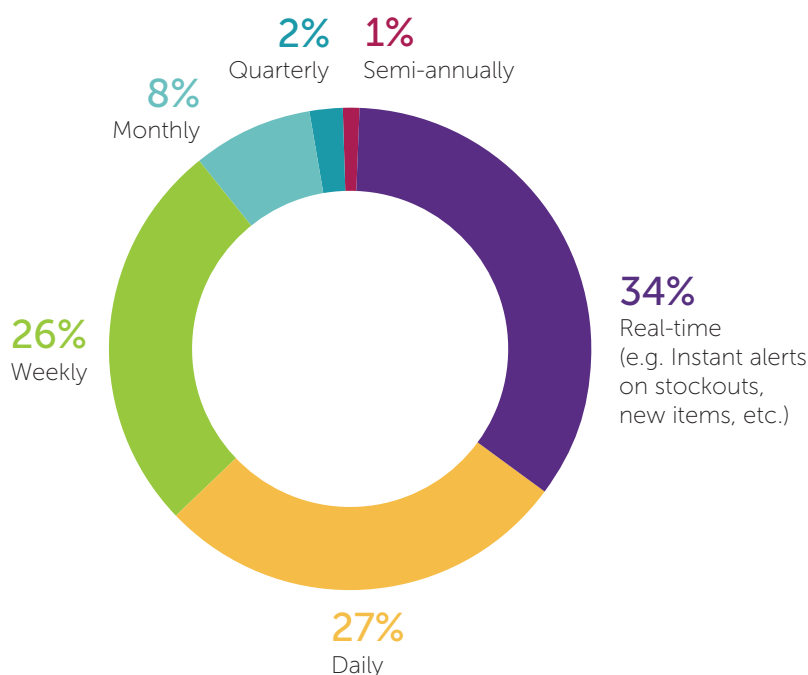
account executives, marketers or sales managers can view summary reports or access images to see actual conditions.

The objective and transparent nature of this method allowed the client to link sales rep and distributor compensation directly to the quality of execution.

Further underlining the importance of data recency, our survey found that 1 in every 3 respondents desired to receive information on store conditions in real-time. This is especially so in UK and China. Daily, or at best weekly, is the minimum desired frequency by the majority. Looking at responses across categories, those operating in the Household and Beauty/Healthcare sectors indicated a strong preference for

receiving real-time alerts at 46% and 50% respectively whereas those in the Food and Drink category said they could also do with daily or weekly updates.

To understand where problems exist, quantify the size of the problem, and most importantly, fix and mitigate its impact on sales, it becomes critical to provide data to the right people with accuracy, quality and speed.



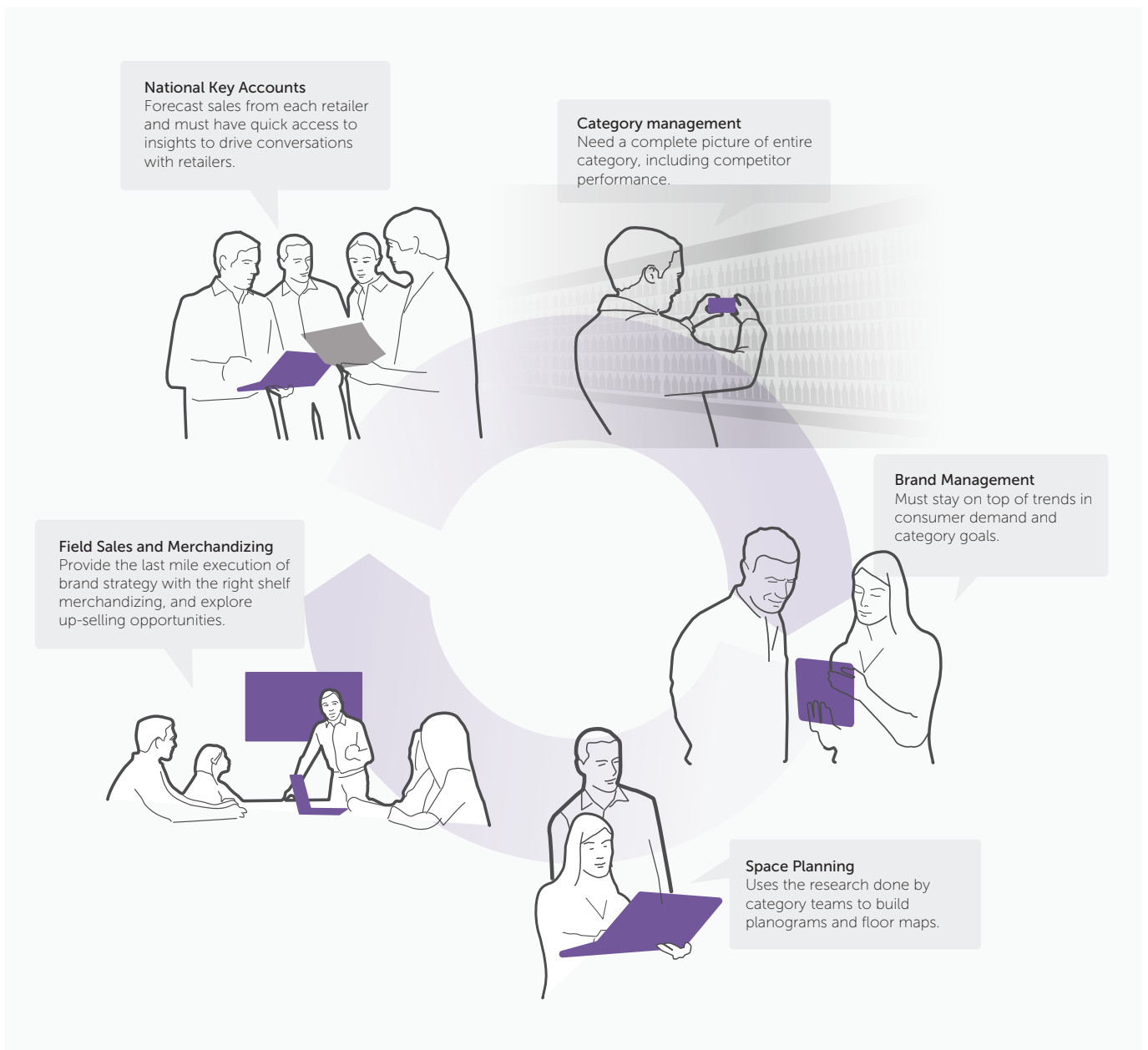
What is the optimal frequency at which you would like to get information on store conditions to improve in-store execution?

Data for the greater good

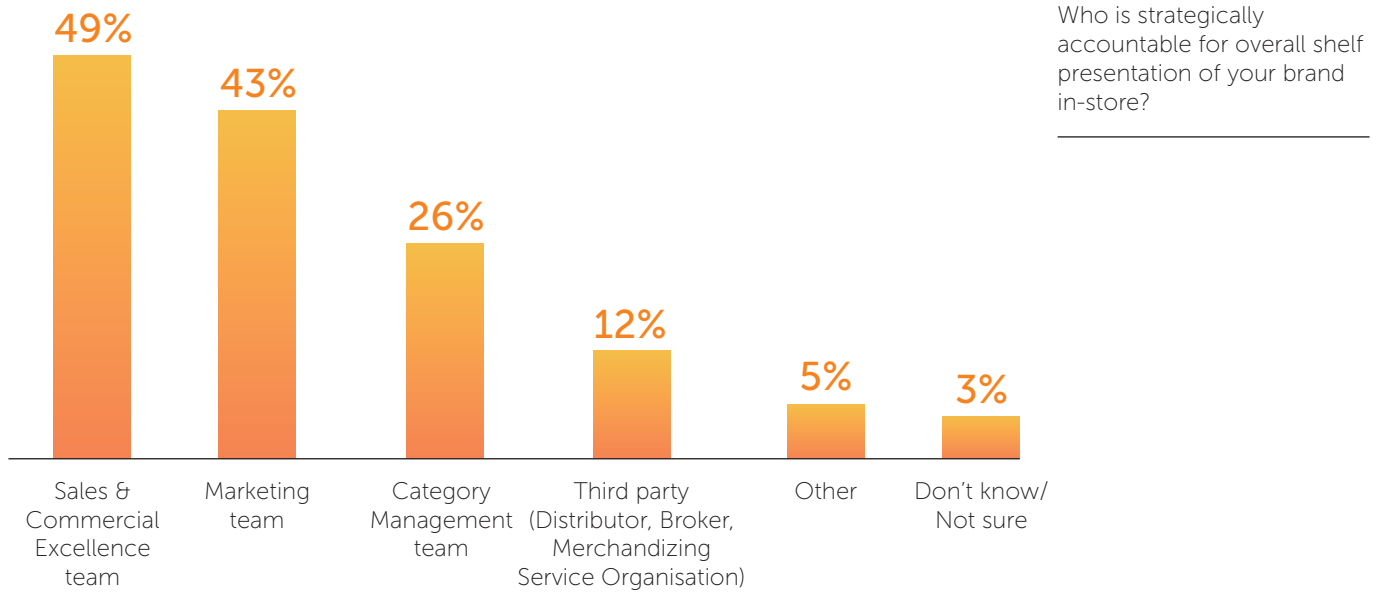
While retail execution is primarily a sales-led function, the value and impact of in-store data on other groups cannot be emphasized enough. Teams spanning category management, space planning and brand management, to national key accounts and field sales teams each have their own unique objectives and requirements of in-store data, and what is important for one team may also help others during shelf execution.

In our survey, we found that CPG teams often point at each other when asked who has strategic accountability for overall shelf presentation of their brands in retail. The reality might well be that there's increasingly a shared ownership.

But the players are not using the same standards, report card or dashboard. A green light for one is not a green light for another, and sometimes what's important to know to one team is nice to know for another.

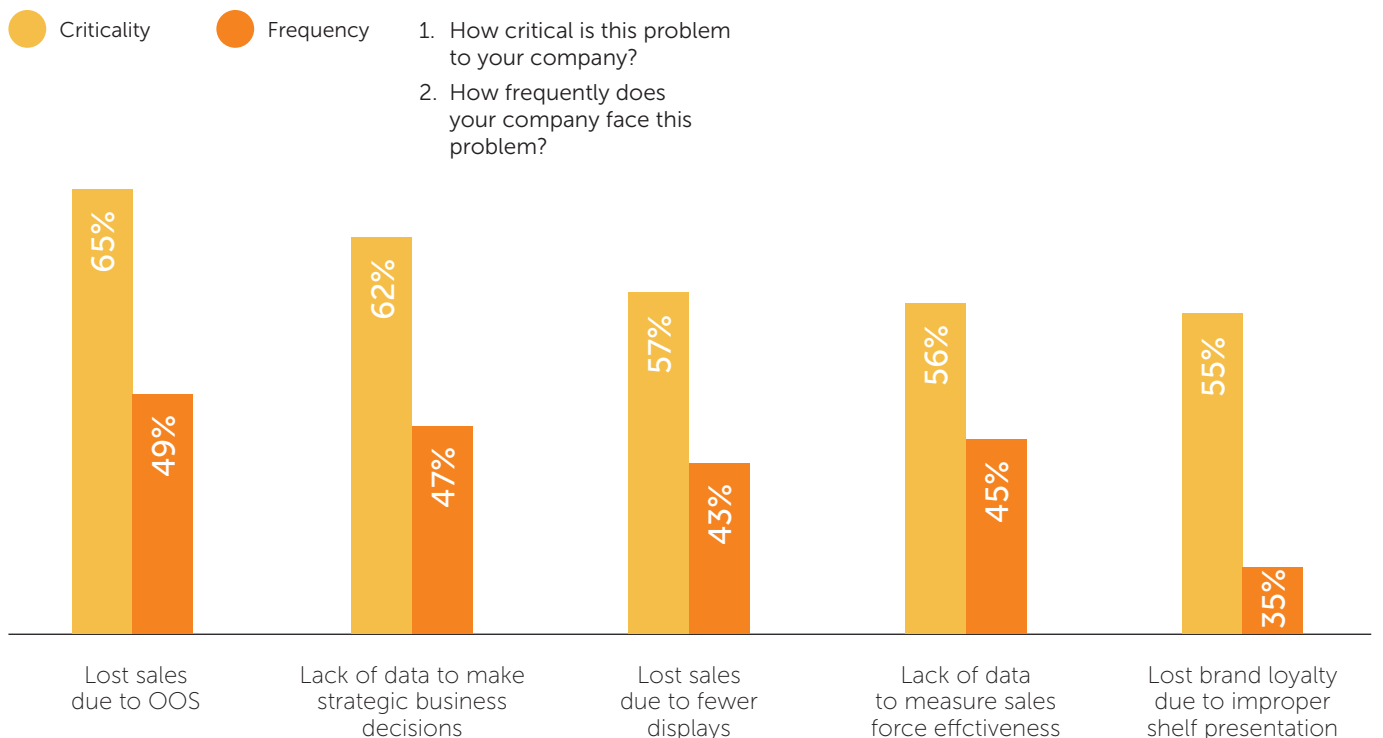


■ Data for greater good



Companies need a common language that sales, marketing and category management teams can adopt when it comes to creating and executing the right shelf strategy. To offer the right product in every store in the most compelling way, there should be one single reliable source of store reality.

Our survey paints a grim picture when it comes to availability of the right data across teams. 62% of respondents believe that lack of continuous visibility and intelligence on shelf conditions seriously hampers their ability to make strategic business decisions. 47% say they face this problem frequently within their organizations.



USE CASE



A Business Solutions specialist responsible for implementing sales force automation solutions at a leading CPG in the UK had this to say after reviewing an initial demo of Computer Vision technology with his internal teams:

"Most people get the fact CV makes audits quicker and more efficient. What they are struggling with is what else they can achieve and how to forecast what those benefits would be worth. For example, if the rep gets the information back in the call, what could they do with that information and what difference would that make versus the rep being there and not using CV?"

Would they find more out of stock products? How many more? Are they able to increase or maintain share of shelf better as a result of knowing about losses or gains from other manufacturers?"

What other teams across the business could use the information? What would they do with that and what sort of difference would that make to them?"

After using the solution for six months, the specialist got all the answers. First, field teams spend 50% less time per store per month measuring OOS and SOS. Next, data was used to pinpoint and fix problem areas at store-level, like gaps in certain categories and capacity errors. The result was an improved OSA and gain in facings and capacities.

What's more, better data and improved reporting capabilities has resulted in stronger cross functional collaboration. Customer business teams got an aisle-level understanding of their customer's stores, category management teams were able to target opportunities with granular level insight on distribution and share of space while supply chain teams solved distribution issues by combining execution data with EPOS and supply chain data.

The levers of a perfect store

As competition for shelf space intensifies and consumer preferences change, a one-size-fits-all approach to merchandizing and sales no longer works. Retailers and manufacturers are focusing on providing segmented, targeted shopper experiences which drive greater revenues.

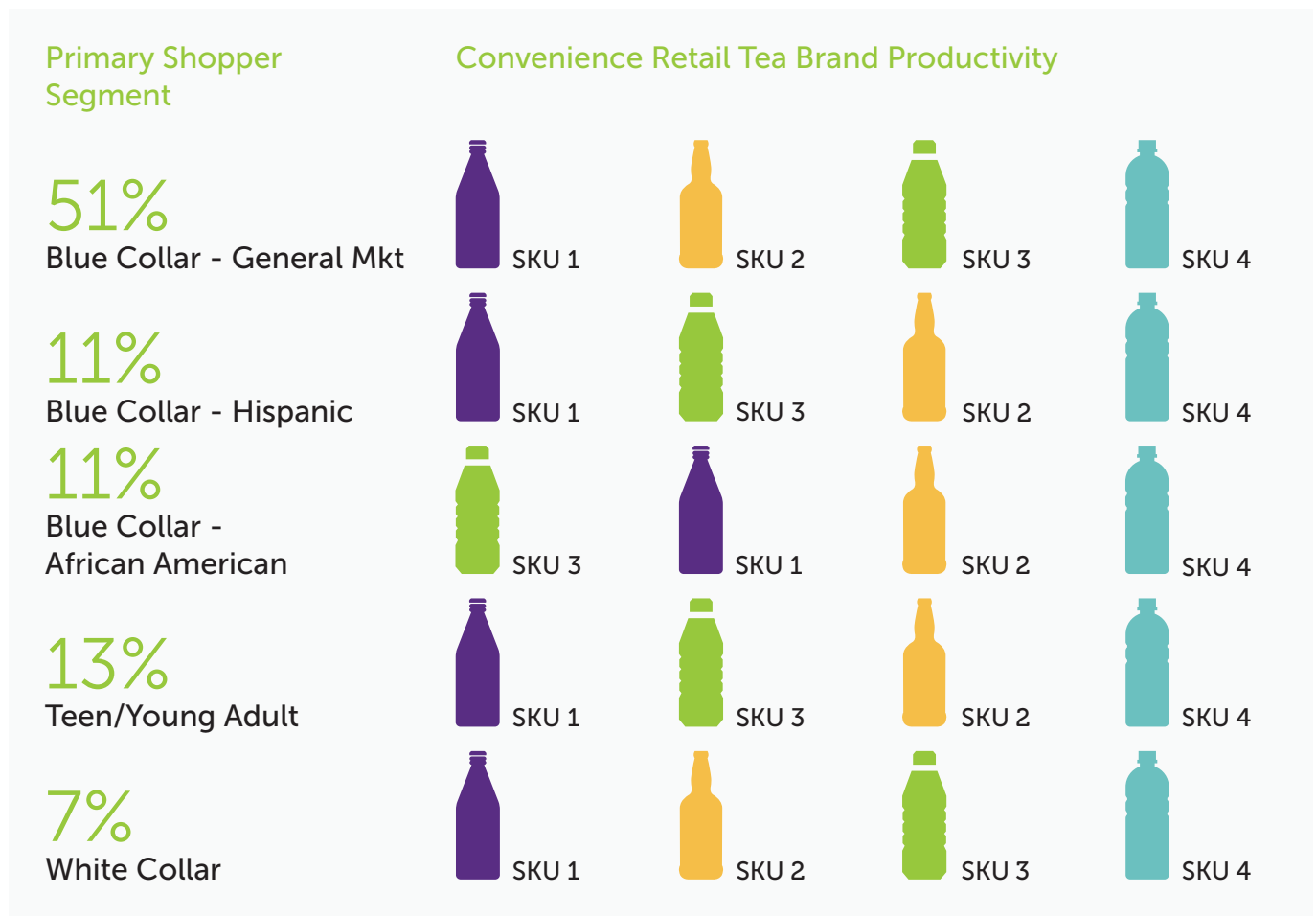
A category review is no longer just about getting new products through the door. For category captains, this is an opportunity to jointly develop the most profitable merchandizing strategy and find new ways to "interrupt the market". One leading beverage manufacturer creates clusters of similar customer profiles based on a combination of:

- Shopper variables: Socio Economic Level, Pop Density, Pop Profile/ethnics, Consumption Occasion, Cons Time of day, Cross-Purchase etc.
- Customer variables: Geographical location, Channel, Sales Potential, Competition, etc.

The output is a "Picture of Success" for several clusters. CPG category captains work with retailer space planning teams to sometimes create up to 10 planograms per category in one retailer – one for every sub-category, store type (modern or convenience channel), location (ambient and chilled or frozen), fixture size and shelf unit variations.



■ The levers of a perfect store



This makes the already-complex process of in-store execution even more intricate. In addition to accurate, recent in-store data, brands need broader and deeper visibility and measurability across key commercial levers.

In our survey, the percentage of respondents satisfied with their quality of tracking across various dimensions was 54% or less. Interestingly, the visibility problem is greater in developed markets compared to emerging markets like Brazil and China. Respondents from the Beauty/Healthcare category were especially satisfied with how they tracked Location while those operating in Household categories rated their quality of tracking Price as being excellent.

47%

Presence:
Distribution, on-shelf availability, out of stock, empty spaces (holes)

51%

Price:
List price – display price compliance, presence of shelf tags

54%

Location:
In-store location, placement on shelf (eye level, top level, etc)

How would you rate the quality of tracking of these in-store execution practice areas in your organisation today?

% Choosing (Excellent, very good)

48%

Promotions:
Secondary displays, availability of promoted products, POS

47%

Assortment:
Core ranging, planogram compliance

37%

Adjacencies:
Category adjacencies, competitor adjacencies

Levers influencing shopper decisions

Let's explore how AI and Computer Vision based solutions are making manufacturers data-rich and better positioned to make sound business decisions.

Product Presence

Out of stocks have been at 8% in retail for the last 20 years. More than 50% of out of stocks are caused by defective shelf execution practices, as opposed to upstream supply chain issues. In our survey, "Presence" was agreed to be most important in-store execution area, getting 29% of the votes.

USE CASE

Manufacturers today know what they've sold, what they've shipped and what the inventory levels should be. Consider these rows corresponding to individual stores. With the limited data available to them they get a limited understanding of what's occurring on-shelf and many appear to have optimal on-shelf situations. For example, the two stores at the top appeared to have similar stock.

Sales	Inventory	Classification (Root-cause)	Recommended action
High ▶	High ▶	Optimal	Do nothing or decrease inventory
High ▶	High ▶		
High ▶	Low ▶	Optimal	Do nothing or increase inventory
High ▶	Low ▶		
Low ▶	High ▶	Stale	Promote more or decrease facings
Low ▶	High ▶		
Low ▶	Low ▶	Stale	Change assortment
Low ▶	Low ▶		

However, layering in Computer-Vision generated in-store data paints the full picture, filling in the gap in data needed to understand the true in-store situation, and what can be done to drive towards optimal on-shelf availability. Now we notice that the second store has an issue with low on-shelf availability. This directly translates into lost sales, and when combined with sales and inventory data, uncovers issues with either store labor and/or shelf holding power.

Brands armed with this detailed view can engage their retail partners in a more strategic conversation and work together to remedy these issues, driving a mutually beneficial increase in sales.

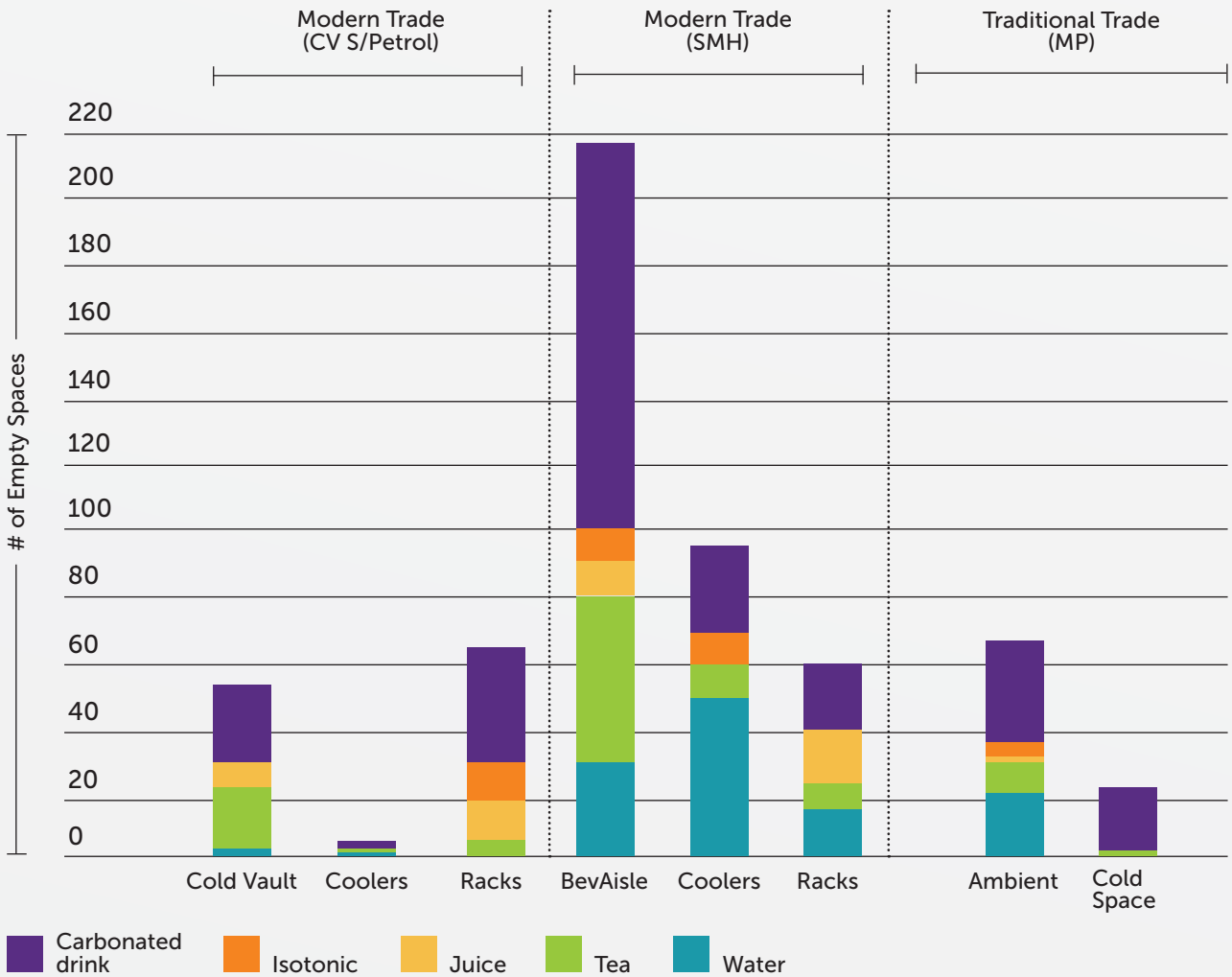
Sales	Inventory	OSA	Classification (Root-cause)	Recommended action
High ▶	High ▶	High	Optimal	Do nothing or decrease inventory
High ▶	High ▶	Low	Losing \$ - Store Labor or Holding Power	Target retail resources, increase facings sell more displays
High ▶	Low ▶	High	Optimal	Do nothing or increase inventory
High ▶	Low ▶	Low	Losing \$ - Poor forecast	Increase forecast
Low ▶	High ▶	High	Stale	Promote more or decrease facings
Low ▶	High ▶	Low	Poor Performer - Potential phantom inventory	Confirm inventory on hand counts
Low ▶	Low ▶	High	Stale	Change assortment
Low ▶	Low ▶	Low	Poor Performer - Potential inventory issue	Increase forecast &/or abandon

Assortment & Placement

Clearly, new items and planogram resets are the gifts that keep on giving if executed correctly. But planogram compliance is one of the hardest things to measure in a retail context. Non-compliance has been proven to directly impact sales, as a result of inventory distortion and under-utilization of available space. A P&G funded study has revealed that a 10% change in planogram compliance can result in a 1% change in the level of out-of-stocks, and consequently decrease the sell-out by 0.5%.

USE CASE

One beverage giant in Australia uncovered that out of 65 km of linear shelf space its products occupy in a specific city, 4 km went unutilized due to empty spaces. Using Computer Vision-powered retail execution solutions, the client identified in-store locations with low shelf utilization. This presented the evidence for the client to close critical compliance gaps, improve merchandizing execution and beat competition in the Tea category.



Advanced data science techniques are taking assortment and product placement strategies to another level. By product placement information with EPOS data, CPGs and retailers can reengineer placement strategies and unlock growth.

■ The levers of a perfect store

Price Compliance & Promotion Activation

44% of our survey respondents agreed that promotion and display compliance in stores is poor. Price and promotion compliance were next only to on-shelf availability in terms of importance.

Right product

- Are my promoted products available?
- Are they in the right quantities?
- Does the product have adequate facings to be visible to the consumer?

Right displays

- Is the right point of sale material displayed to convey the promotion?
- Are the displays in the right location (On the "racetrack", endcap, etc.)?

Right price

- Are the right prices being displayed?
- Are there any missing price tags?

According to a BCG report, 20-50% of promotions generate no noticeable lift in sales, or worse, have a negative impact. Another 20-30% dilute margins in that they don't generate an increase in sales sufficient to offset promotion costs.

USE CASE

A 2018 Trax-Nielsen study on the US beer market leveraged Computer Vision to reveal some fascinating insights about in-store marketing in the beer category. While top-selling brands like Bud Light, Bud and Coors Light, Miller Light and Corona Extra were on display in over 30% of outlets for the first six months of the year, smaller and craft brands enjoyed 67.6% of share of display.

Taking the insights to the next level, manufacturers can also see the impact of their own POS activity

at the retailer or store level. For example, a top manufacturer by sales saw that Retailer A is currently underweight when it comes to POS materials. Without this information, the brand may have chosen to increase POS materials and displays across all retailers, but the insights allow them to target their initiatives more efficiently and effectively.



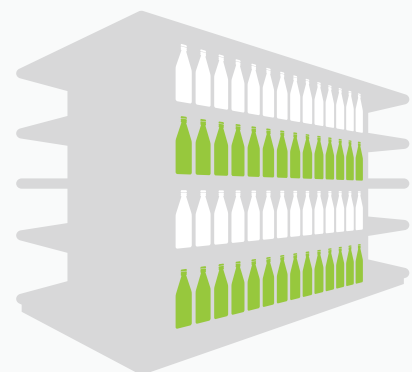
Competitor Adjacency

There is a keen interest among manufacturers to monitor their competition. 48% of our survey respondents claimed that they routinely track how their competitors perform at shelf in most stores and channels. However, traditional audits and surveys pale in comparison to the kind of actionable competitive insights that AI and Computer Vision technology can provide.

USE CASE

A leading beverage manufacturer wanted to understand their competitive landscape, along with a category mapping of their outlets. Using AI, they discovered significant opportunity to displace their competitors in juice, isotonic and water categories.

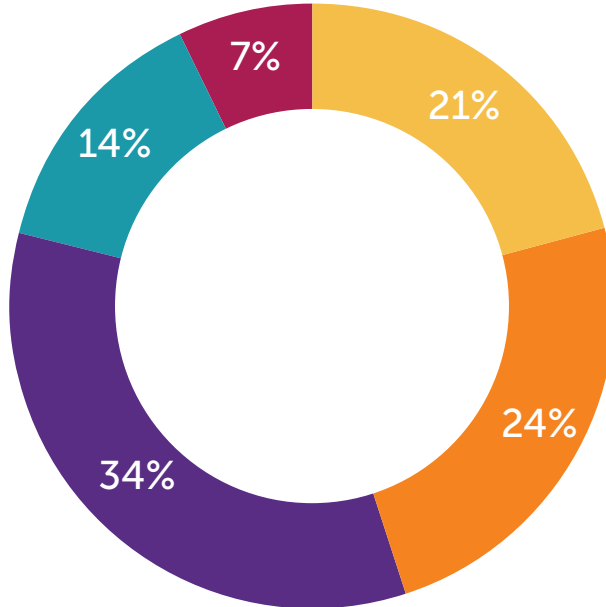
In fact, their water was not being sold in 16% of modern trade outlets with a competitive brand presence. Closing the gap in these categories by 50% allowed the manufacturer to increase their revenue by USD 466,000.



Conclusion

There is a clear intent among manufacturers to use these advanced technologies. 79% of respondents in our survey say that they either have in place or will adopt a real-time eyes-in-store solution in the next 1–3 years.

- Immediately
- Already working on it
- Medium term*
- Long term**
- Not sure

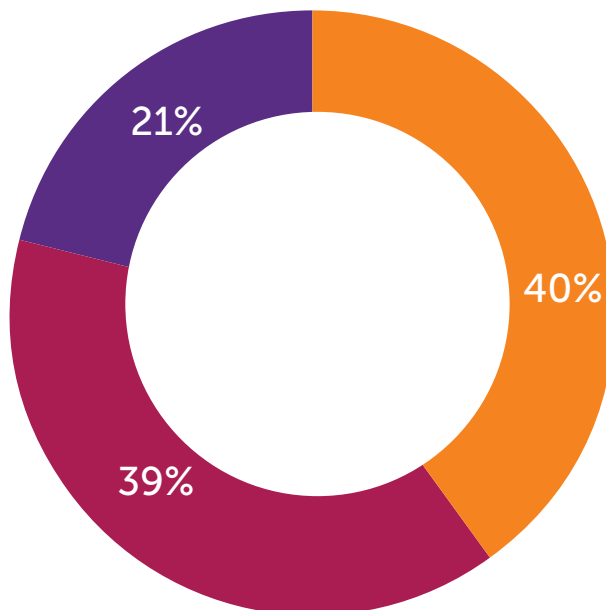


If you had a company/ service that could give you eyes in store with actionable insights within an hour, when do you see your organization leveraging this type of asset?

*2–3 years out once more affordable and proven
 **Don't see it happening anytime soon

Unsurprisingly, 40% of respondents say they will look to use AI to increase incremental sales. In a time where companies are realizing just how overstretched their sales teams are, improving their productivity also emerges as a desired outcome. Over 20% will also leverage AI investments to intensify their analytical capabilities, including better competitor insight and identifying the key in-store levers to sales.

- **Increase Incremental Sales**
 Increase in-stock distribution/facings, improve trad e promotions and planogram compliance
- **Improve Sales Force Productivity**
 Increase stores/aisle visited, reduce time spent on manual audit, increase sales rep/retailer interaction
- **Use Data to Develop Better Shelf Strategies**
 Understand competition better, analyse impact of shelf conditions on sales, improve relationship with retail partners



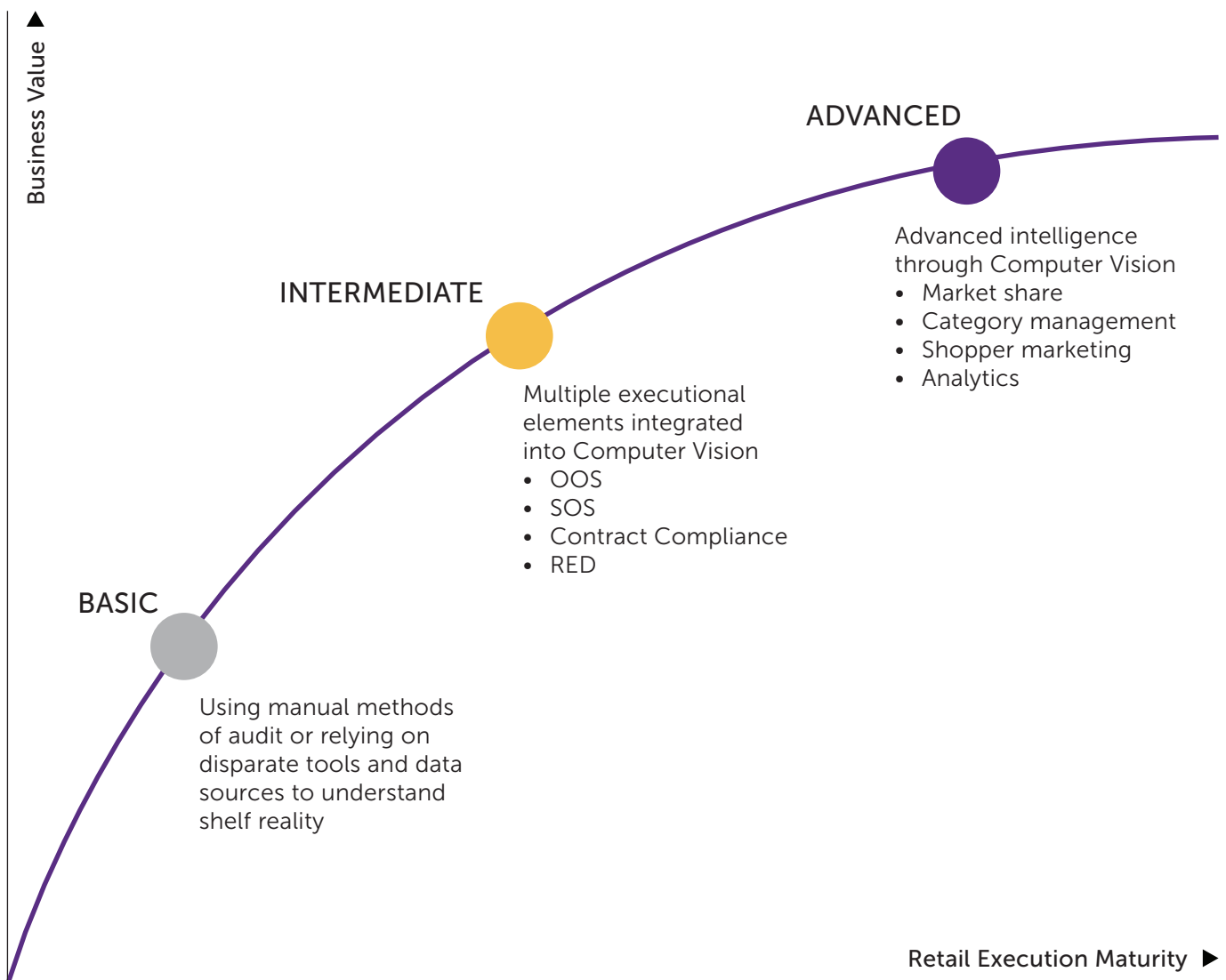
If you had access to technology that automates store data collection and provides better intelligence on store conditions, which one of the following outcomes would you prioritize?

■ Conclusion

With the pace of technology-driven disruption today, drastic changes are inevitable in almost every industry. This is true even in retail, a sector that has traditionally been resistant to change. The good thing is that manufacturers have recognized the need to move away from traditional methods of execution and shown a clear interest in exploring new solutions.






To this end, they are looking at solutions which can provide a comprehensive, granular understanding of what is happening at the shelf, both with their own products and that of competitors. Winning manufacturers have shown that making this data accessible to the right teams at the right time and at scale is a game changer for the business.


But not all manufacturers are at the same stage of adoption. Some are at the foothills, with no image recognition tools at all, and struggling with manual methods of audits. Further along, some are in the early stages of adoption, tracking execution elements like OOS and share of shelf using image recognition. Then there are those few who are extracting the full potential of AI and Computer Vision, tapping into them for advanced intelligence on markets, categories, customers, competitors and even shoppers. The aim for every manufacturer should be to reach the edge of this maturity curve and push the boundaries of what is possible with the technology.



Addendum

Trax is at the forefront of innovation in computer vision technology for retail execution. Our portfolio is built to serve a wide range of CPG manufacturer needs, right from getting started with shelf monitoring to using shelf intelligence to build a culture of execution excellence and consistently win at the shelf.

Data Science & Shelf Strategy		SHELF BLUEPRINT by 			
Market Measurement	SHELF PULSE by 				
In-Store Execution & Store Management					
Data Acquisition & Recognition	<p style="text-align: center;">Trax Computer Vision Platform</p> <table border="1"><tr><td data-bbox="528 1402 796 1480">Fine Grained Recognition Engine</td><td data-bbox="826 1402 1094 1480">Stitching & Geometry Engines</td><td data-bbox="1125 1402 1393 1480">Data Quality Engines</td></tr></table>		Fine Grained Recognition Engine	Stitching & Geometry Engines	Data Quality Engines
Fine Grained Recognition Engine	Stitching & Geometry Engines	Data Quality Engines			



To learn more, contact us.

Methodology

Trax conducted a survey in September 2018 to understand what shelf health means for the Consumer Goods Industry – from the challenges they face today in getting the shelf health fundamentals right, the impact of not doing it properly as well as how they go about it currently and their interest and appetite for advanced solutions involving AI and computer vision.

304 respondents participated in this study done via online interviews conducted in English and local languages as required. The survey sample comprised entirely of professionals working in large Consumer Goods organisations with a global annual turnover greater > 100 million USD. All were part of Sales, Marketing or Category Management departments. Geographical coverage was evenly spread across 5 countries viz., USA, UK, Australia, Brazil and China.

About Trax

Trax is the world leader in computer vision solutions for retail, ranking in the top 25 Fastest Growing Companies on Deloitte's Technology Fast 500 list. The company enables tighter execution controls in-store and the ability to leverage competitive insights through their in-store execution tools, market measurement services and data science to unlock revenue opportunities at all points of sale. Trax does this using smartphones and tablets to gain actionable shelf analytics in real-time. With over 175 clients, in over 50 countries, top brands such as Coca-Cola, AB InBev, Nestle, Henkel, PepsiCo and many more, leverage Trax globally to manage their in-store execution and increase revenues at the shelf. Trax is headquartered in Singapore with offices worldwide. To learn more about Trax, please visit www.traxretail.com.

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