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STEP UP: Scalable transformation for efficiency and profitability to unleash progress

July 2026

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MOFPI
अविनाश जोशी, भा.प्र.से.
Avinash Joshi, IAS

सत्यमेव जयते

सचिव
भारत सरकार
खाद्य प्रसंस्करण उद्योग मंत्रालय
Secretary
Government of India
Ministry of Food Processing Industries



Message

India's food processing sector is emerging as a key driver of economic growth, supported by a strong agricultural base, a rapidly expanding consumer market, and increasing emphasis on value addition. With rising investments, innovation and technology adoption, the sector is well positioned to enhance competitiveness, strengthen food security and expand India's presence in global food markets.

The Government of India has accelerated this transformation through flagship initiatives such as the Production Linked Incentive Scheme for Food Processing Industry (PLISFPI), Pradhan Mantri Kisan SAMPADA Yojana (PMKSY) and the Pradhan Mantri Formalisation of Micro Food Processing Enterprises (PMFME) Scheme. These interventions are strengthening processing infrastructure, promoting entrepreneurship, reducing post-harvest losses, improving supply chains and enhancing quality and traceability in line with international standards.

This Knowledge Report presents a comprehensive overview of the opportunities, challenges and emerging trends shaping India's processed food sector. I congratulate all contributors for their valuable efforts and am confident that this report will serve as a useful reference for policymakers, industry, investors and other stakeholders in advancing the growth of the food processing ecosystem.

Date- 09-07-2026

(Avinash Joshi)

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Message from the Federation of Indian Chambers of Commerce and Industry



Jyoti Vij
Director General
FICCI

FICCI, in collaboration with Deloitte, is pleased to present the Knowledge Report on **"STEP UP – scalable transformation for efficiency and profitability to unleash progress."**

India's processed food industry is undergoing a structural transformation that goes well beyond incremental growth. For decades, the sector has operated largely on the strength of volume: a vast agricultural surplus, a large domestic population and an extensive, if informal, distribution network. Today, that foundation is being reimagined. The industry is increasingly being shaped by a more discerning consumer, a more demanding buyer and a more complex operating environment, and the companies that will lead the next chapter are those investing in capabilities, not just capacity.

We have seen, firsthand, the growing ambition within the industry: the increased innovation and introduction of new product categories, the expansion of organised cold chain and logistics infrastructure, the rise of branded and value-added products across categories, tapping newer markets and a new generation of food-tech ventures redefining what Indian food can look like. The sector's contribution to agricultural income, employment and export earnings makes it not merely an industry priority, but a national one.

At the same time, the industry continues to face some ongoing headwinds. Supply chain inefficiencies, post-harvest losses, underpenetrated digital adoption among small and mid-sized enterprises and an export portfolio still skewed toward commodity categories are constraints the industry must address with urgency and coordination. Closing these gaps will require sustained private investment, targeted public policy and a shared commitment to raising standards across the ecosystem.

This knowledge report offers a comprehensive, analytically grounded perspective on the evolving dynamics of India's food processing sector. It examines the forces reshaping consumer demand, the revenue and margin imperatives confronting industry players, the role of technology and operational excellence in driving competitive differentiation and the strategic pathways to stronger export positioning. We trust that all stakeholders will find this Knowledge Report insightful and engaging.



Message from FICCI Food Processing Committee



Hemant Malik
Chair-FICCI Food Processing Committee; Executive Director ITC Ltd & Div CEO ITC Food



Prashant Peres
Co-Chair, FICCI Food Processing Committee; General Manager Mars Snacking India



Rajneet Kohli
Co- Chair-FICCI Food Processing Committee & Executive Director- Foods Hindustan Unilever Ltd



Sudhakar Rao Desai
Co-Chair, FICCI Food Processing Committee, Chief Executive Officer & Director, Emami Agrotech Ltd.

India's food processing sector is entering a defining phase of growth, one characterised by rising premiumisation, anchored in a robust agricultural base and propelled by a rapidly evolving consumption landscape. The sector is transitioning toward an ecosystem increasingly shaped by consumer demand, product differentiation and organised value chains, reflecting a broader, structural shift toward value-led growth.

The early signals of this shift are already evident. Consumption patterns are becoming more discerning, with rising expectations around quality, convenience and product credibility. In response, the industry is recalibrating its approach, moving beyond volume expansion to invest more deliberately in processing depth, innovation and brand-led propositions. Concurrently, structural improvements are gaining ground on the supply side. Investments in cold chain infrastructure and logistics are reducing long-standing inefficiencies, while the growing presence of organised players and technology-enabled models is enhancing consistency and responsiveness across the value chain.

From an industry standpoint, this phase marks a meaningful step toward enhanced competitiveness. The gradual formalisation of the sector, the wider adoption of standards and greater alignment with global practices are enabling Indian players to operate with greater reliability and at a larger scale. Regulatory frameworks, particularly those governing food safety, labelling, traceability and sustainability, are becoming more structured and stringent, raising the baseline for quality and compliance. While this adds operational complexity, it is also contributing to greater standardisation, stronger consumer trust and improved market readiness, both domestically and internationally.

India also holds considerable opportunity to elevate its export competitiveness by leveraging its production strengths to build globally relevant, value-added portfolios. An equally significant development is the growing recognition of sustainability as an operational imperative. Efforts to improve resource efficiency, reduce food waste and optimise material use are gaining meaningful traction not only as environmental priorities but also as tangible levers for cost efficiency, supply chain resilience and long-term competitiveness.

Looking ahead, a critical inflexion point lies in the sector's ability to translate production scale into higher value realisation. India has established significant depth in primary and commodity segments; however, the next phase will require deeper participation in value-added categories, underpinned by stronger capabilities in quality assurance, packaging innovation and regulatory compliance. This transition is already underway, with increasing strategic focus on innovation and more disciplined portfolio management. Sustaining this momentum will depend on the industry's capacity to deliver consistency, build lasting credibility and remain aligned with evolving consumer and regulatory expectations.

Foreword by Deloitte



Anand Ramanathan
Partner and Consumer Industry Leader
Deloitte South Asia



Avinash Chandani
Partner, Deloitte India

The Indian food sector is witnessing a structural reset, signalling not just a new phase of growth, but a fundamental shift in how value is created, captured and sustained across the ecosystem. For decades, India's strength has been anchored in its scale of agricultural production. What is now unfolding is a far more consequential transformation: the emergence of a value-led, consumer-focused food economy.

This evolution is being shaped by a powerful convergence of several forces. Rising incomes, rapid urbanisation and expanding digital access are creating a more discerning and informed consumer, while shifting lifestyles are driving demand for quality, convenience, health and experience. At the same time, India's consumption landscape is evolving from a traditional pyramid to a trapezium, driving premiumisation alongside the continued preference toward value-led offerings. Growth is unfolding across multiple parallel demand curves, with traditional formats evolving even as new categories reshape consumption. Together, these shifts are creating a more dynamic and diversified food ecosystem.

India also stands at the cusp of strengthening its position in global food markets. The country's rich agricultural base and culinary heritage provide a strong foundation. However, realising this potential will depend on the ability to move beyond commodity exports toward branded, value-added offerings that meet evolving global standards while catering to the preferences of the Indian diaspora and increasingly diverse international consumers. This is not merely an export opportunity; it is a pathway to elevating India's role in the global food ecosystem.

Advancements in food processing, product innovation and distribution are enabling companies to deliver differentiated offerings at scale. Increasingly, artificial intelligence is accelerating this transformation by enabling sharper consumer insights, faster product development, demand forecasting and personalised engagement. Combined with smarter operations, digital manufacturing and technology-enabled decision-making, these capabilities are strengthening competitiveness and creating the foundations for sustainable growth.

The sector must also contend with a more complex operating environment. Climate variability, input volatility, supply chain disruptions and evolving regulatory frameworks are reshaping the industry's risk landscape. Building resilient, agile and technology-enabled supply chains that enhance traceability, improve efficiency and ensure consistent quality will be critical, alongside rising expectations around sustainability and compliance.

This report offers a comprehensive perspective on these shifts, capturing the scale of the opportunity and the structural changes required to unlock it. It highlights that the future of India's food industry will be shaped by the alignment of consumer insight, operational capability, innovation and regulatory support. As India advances into this next phase, the organisations that will lead are those that can move decisively, embrace change, invest ahead of the curve and build capabilities that are both scalable and sustainable. The opportunity ahead is significant. The imperative now is to act with clarity, resilience and ambition.

Leadership insights



The next wave of growth in India's packaged food industry will be defined as much by changing consumer needs as by expanding market reach. While the opportunity continues to be driven by deeper penetration across both rural India and emerging urban cohorts, consumers in these markets are also becoming far more discerning about what they eat. Health, protein and sugar consciousness are no longer niche concepts or passing fads - they have evolved into enduring consumer priorities, pushing companies to rethink products rather than simply expand distribution. At the same time quick commerce and digital platforms are accelerating the speed at which consumer preferences emerge and scale, compressing innovation cycles across the industry. The next decade of growth will be driven by the convergence of affordability, accessibility, and health, enabled by technology and innovation that make better-for-you products more relevant and appealing without sacrificing taste.

Mr. Hemant Malik
Chair-FICCI Food Processing Committee; Executive Director, ITC Ltd & Div CEO ITC Food



The food processing sector in India has immense potential for growth and scalability. In the last few years, backed by an enabling policy environment such as Make in India and tax reforms, the sector has transitioned from basic value-addition to an innovation-driven industry that now gives consumers various price and package options. With a renewed focus on scalability, innovation, and entrepreneurship the food processing sector is uniquely positioned to attract investments and enhance domestic growth and transform India into a global food export player.

Mr. Prashant Peres
Co-Chair, FICCI Food Processing Committee; General Manager, Mars Snacking India



India's food processing sector is at an inflection point. By harnessing scale, consumer centric innovations and technology, we can unlock unprecedented value from farm to fork — and position India as a global food processing powerhouse

Mr. Rajneet Kohli
Co-Chair, FICCI Food Processing Committee & Executive Director- Foods, Hindustan Unilever Ltd



Unlike many mature markets where growth is largely a battle for market share, India's food sector continues to benefit from the creation of new consumers, new occasions and new categories. This presents a great opportunity but also demands a nuanced understanding of a highly diverse market. Consumers today are more willing to experiment, yet their choices remain anchored in trust, which continues to be the industry's most enduring source of competitive advantage. They increasingly seek products that balance taste, wellness and value rather than optimise for any single attribute. As channels evolve and barriers to entry fall, success will depend not on the breadth of opportunities a company pursues, but on its ability to identify the few spaces where its capabilities, brand equity and consumer needs intersect most powerfully.

Mr. Sudhakar Rao Desai
Co-Chair, FICCI Food Processing Committee, Chief Executive Officer & Director, Emami Agrotech Ltd



The Indian food market is moving away from a mass-consumption era towards one of customisation and relevance. Where categories were once built around a handful of dominant products and brands, consumers today are seeking more personalised experiences, different flavours and distinct value propositions. Digital platforms and quick commerce have accelerated this shift by giving consumers an unparalleled breadth of choice while simultaneously lowering the barriers for new brands to enter the market. This creates a more dynamic, yet more competitive environment, where scale alone is no longer sufficient. Winning will increasingly depend on an organisation's ability to innovate continuously, respond quickly to emerging trends, and remain relevant across an increasingly diverse set of consumer needs.

Mr. Tarun Arora
President CIFTI-FICCI & Chief Executive Officer, Zydus Wellness Ltd



The Indian food market is undergoing unprecedented change, with consumer expectations and behaviour evolving at a pace that is reshaping traditional market dynamics. New channels have changed how consumers discover products, compare choices and form preferences, making adaptability a strategic necessity rather than a competitive advantage. Whether it is quick commerce, health-led innovation, premiumisation or digital engagement, the common thread is that companies must follow the consumer rather than expect the consumer to follow them. Success will increasingly come from being present wherever demand emerges, using technology to respond faster, and maintaining the discipline to continually refresh portfolios, channels and capabilities. In a market where complexity is growing rapidly, relevance will matter more than legacy and scale.

Mr. Sunil Dsouza
Managing Director & Chief Executive Officer, Tata Consumer Products Ltd



True progress in India’s food processing sector will come from combining operational efficiency with scalable, innovation-led growth. As the industry evolves in response to changing consumer preferences and global market dynamics, agile supply chains, continuous innovation, and sustainable business practices will be critical to building long-term resilience and competitiveness. Equally important is the ability to cater to the ‘Many Indias’ of today through differentiated offerings, while also accelerating premiumisation to meet rising consumer aspirations. By strengthening execution capabilities and investing in future-ready growth platforms, the sector can unlock profitable growth while better serving the evolving needs of Indian consumers.

Mr. Rakshit Hargave
Managing Director and Chief Executive Officer, Britannia Industries Ltd



India's food market is evolving from one defined by broad consumption trends to one shaped by increasingly differentiated consumer needs. While the opportunity to convert consumers from unpackaged to branded products remains substantial, the next phase of growth will be driven by consumers seeking more specialised propositions, whether through premium products, health-focused offerings, recipe-specific solutions or greater convenience. Consumers are being exposed to an ever-expanding range of products, ideas, and experiences, enabling companies to test and scale innovation more rapidly. As a result, growth will increasingly be driven by the ability to identify emerging needs early, develop relevant propositions and continuously evolve portfolios in line with changing consumer expectations.

Mr. Vivek Chandra
Chief Executive Officer – Global Branded Business, LT Foods Ltd



India’s food processing sector is entering a high-growth phase, fueled by rising demand for nutrition, convenience, and quality. To capture this opportunity, the industry must prioritise innovation, build resilient value chains, and strengthen partnerships across the ecosystem.

Mr. Dheeraj Talreja
Managing Director and Vice President, Cargill Food South Asia



By combining innovation, technology, operational excellence and resilient supply chains, India's food processing sector is already stepping into a new era of transformation. The industry is creating higher value for consumers, accelerating progress for farmers and small businesses and strengthening India's position as a leading global food economy. Together, we are building an ecosystem where growth, sustainability and competitiveness coexist, and the industry thrives as a whole.

Mr. Samir Jain
President, Mondelez India



Scalable transformation is no longer a strategic choice - it is a business necessity. India’s processed food sector stands at a pivotal inflection point. With domestic consumption rising and global appetite for Indian products growing, we must scale with intent. By embedding technology across our value chains, rationalising operations for efficiency, and committing to sustainable practices, we can transform this sector into a true engine of economic progress.

Mr. Sunay Bhasin
Chief Executive Officer, MTR Foods



The Indian food processing sector has a pivotal role to play in strengthening food security, farmer prosperity, and export competitiveness. The next wave of growth will come from scalable transformation—leveraging digitalisation, usage of AI, Traceability tracking, automation and integrated supply chains to drive efficiency and profitability. With the right investments and policy support, India is well-positioned to emerge as a global powerhouse in value-added food processing.

Mr. Anil Chugh
President-Food Business, Wipro Consumer Care India



Driving sustainable growth requires purposeful innovation and agile responses to evolving consumer needs. As the sector scales, balancing efficiency with long-term impact will be key to building resilience and shaping future consumption patterns. While growth is essential, a shared commitment to sustainability is imperative for long-term impact on the consumer choices. STEP UP not only mirrors the current industry need but also paves the way forward to a fundamental paradigm shift.

Mr. Shashi Ranjan
Managing Director, Danone India



A resilient food processing industry begins at the farm. Ensuring fair returns to farmers, promoting good agricultural practices, and creating a transparent farm-to-fork ecosystem through effective regulation are critical to India's journey towards sustainable growth and food security. Building on this foundation, food processing companies must continuously innovate in their systems, processes and product formulations to deliver satisfying experiences to consumers.

Mr. Paras Desai
Executive Director, Wagh Bakri Tea Group



India’s food processing sector stands at a pivotal moment, where demand, technology and policy are converging to unlock new opportunities. But the real test lies ahead. Growth will now depend on enhancing productivity, eliminating inefficiencies, and building resilient, sustainable value chains that not only advance food security and competitiveness, but also reduce environmental impact while creating long-term value at scale.

Mr. Cassio Simoes
Managing Director, Tetra Pak South Asia



The upcoming event encapsulates the dynamic journey of the Indian food processing sector, where innovation, sustainability, and scalability are not just aspirations but essential drivers. This aligns closely with the sector’s goal for the future. By embedding transformation across operations, the industry is increasingly focused on driving greater efficiency to meet evolving consumer expectations and strengthen India’s leadership in global food processing.

Mr. Mainak Dhar
Managing Director, McCain



India's food processing sector stands at a defining moment — where Artificial Intelligence and Analytics, in its predictive, generative and causal forms, is the very architecture of transformation. Intelligent platforms capable of delivering hyperlocal farm insights, billion-scale risk governance and data-backed end-to-end value chains are no longer aspirational — they are transforming efficiency, traceability and farmer prosperity at scale. The time has come not just to trade across geographies, but to actively transform agri-food technologies — so that ground-level transformation reaches every farmer, every value chain and every consumer.

Mr. Navneet Ravikar
Chairman & Managing Director, LeadsConnect Services Pvt Ltd.



India's food processing sector is at a defining inflexion point now, moving into a critical role for value addition, rural prosperity, and broader global competitiveness. It already contributes nearly 8 percent to the country's manufacturing GVA and it supports more than 7 million jobs, so it's highly likely the momentum will keep going, driven by rising demand for processed, convenient, and value-added foods in both domestic and overseas markets. As we move ahead, the industry's outcomes will really hinge on scalable transformation, meaning technology adoption, smoother supply chain efficiency, sustainable sourcing and stronger farm-to-fork integration. And if the sector keeps pushing innovation, cuts down post-harvest losses, and boosts processing capabilities, India has a pretty clear window to reinforce food security, empower farmers and position itself as a global hub for high-quality food products.

Mr. Haresh Karamchandani
Managing Director and Group CEO, HyFun Foods



India's food processing sector stands at a pivotal inflection point, where deep R&D-led innovation, smart value addition, and seamless farm-to-fork integration can unlock significant economic and nutritional value. By aligning science, sustainability, and policy, while fostering industry–academia collaboration, the sector can reduce post-harvest losses, enhance global competitiveness, and accelerate export growth. At Marico, we strongly support this vision and are committed to bridging agriculture and manufacturing to drive rural prosperity and build a future-ready India – positioning it as a globally competitive 'Food Basket of the World' in line with Viksit Bharat 2047.

Dr. Shilpa Vora
Chief Research and Development Officer, Marico Limited



The future of India's food and nutrition sector will be defined by its ability to balance scale with personalisation. As consumer needs become more diverse and dynamic, organisations must leverage technology, data, and agile operating models to deliver customised solutions at scale - driving efficiency, innovation, and sustainable growth across the value chain.

Mr. Anirban Basu
General Manager for Abbott's Nutrition business in India



India's food processing industry must continue investing in innovation to address rising consumer demand for healthier, functional and convenient foods. The Almond Board of California is supporting this evolution by promoting the integration of almonds across categories, formats and applications that expand consumer choice and nutritional value.

Mr. Sudarshan Mazumdar
Director – India, South Korea and Japan, Almond Board of California

Executive summary

A ~US$600 billion opportunity for India's processed food sector

India's food sector is entering a decisive phase of transformation, shifting from a supply-led, volume-driven ecosystem to a consumer-centric, value-accretive growth engine. The industry has substantial headroom for expansion, supported by favourable macroeconomic tailwinds and rapidly evolving consumer preferences. Unlocking this opportunity will require focused action across key growth levers spanning processing, demand capture through value addition, innovation, channel expansion and export-led growth, alongside regulatory ease.

The shifting industry dynamics translate into new growth opportunities for the industry to scale in the future

1

Food processing levels at ~12 percent signal a massive growth runway and potential

Demand fundamentals are already strong; growth can be unlocked by strengthening the supply side through higher value-added processing.

India's penetration at ~12 percent, stands below China and other similar peers **highlighting a massive, untapped growth opportunity.**

An opportunity to close the gap

Commodity	India	Brazil	Thailand	China
Paddy	92%	95%	93%	88%
Wheat	78%	88%	69%	41%
Oilseeds	49%	-	54%	72%
Fruits	4%	38%	46%	7%
Vegetables	3%	-	32%	3%
Meat	34%	56%	14%	-
Milk	21%	28%	29%	-

Source: FAO STAT for USA, Brazil, Thailand, Italy, China; ASI and NSS data for India

What does it mean for the industry?

Growth will come from value addition, processing and formalisation rather than just scale or agricultural output growth

Regulatory implications

- Infrastructure and more incentives to expand processing, testing and warehousing capacity in food clusters may improve viability, both for large players and for MSMEs
- Rationalising processes across Food Safety and Standards Authority of India (FSSAI), state authorities and local bodies can fast-track enablement and progress to a more organised play



2 Strong tailwinds from domestic demand already exist. Consumers are spending more, as well as aspiring to consume better

Consumer demand is becoming personalised and contextual. **Nutrition/ functional categories are growing 2x faster** than the food market (15–20 percent vs ~10 percent)

- **Rising trend of split basket:** balancing affordability and premiumisation
- **Digitally conditioned consumer:** getting influenced by online sources
- **Focus on convenience**
- **Health-focused:** given the rising awareness of growing health concerns and diseases

15–20%

annual surge in sales of health and functional foods

1 in 2

consumers are discovering new products through online channels

What does it mean for the industry?

The same household is seeking affordable staples while buying a premium/healthy cereal in the same basket, and hence, brands built for one end may lose the other. A barbell strategy becomes necessary in the scenario

Regulatory implications

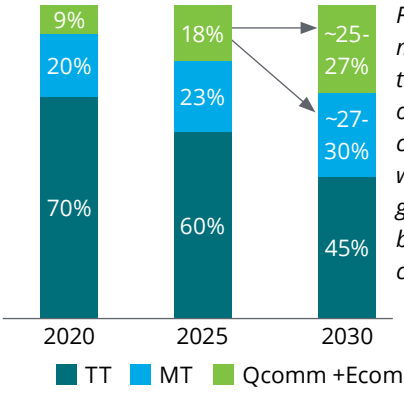
Providing greater clarity and consistency on permissible health, nutrition and functional claims can reduce regulatory uncertainty. Also, strengthening scientific review mechanisms to enable faster evaluation of emerging ingredients and formulations, would help accelerate innovation cycles

3 Share of online channels may reach ~25–30 percent in metros; quick commerce to become a game-changer for urban food consumption

Traditional Trade (TT) will remain dominant nationally, but Quick commerce will reshape metro channel dynamics. Companies that optimise their channel mix will gain a competitive edge.

- **Quick commerce will be the route to premiumisation** and a launchpad for new products
- **Modern Trade (MT) will act as an experience zone** and channel for large purchases
- **TT will remain dominant beyond metros** on the back of convenience, credit and impulse

Share of channels (Top 8 metros)



For top metros, the impact of online commerce will be larger, gaining on the back of Quick commerce

What does it mean for the industry?

Manufacturers will need distinct portfolios, pack formats and activation strategies across channels. Channel lines will blur and need-based channel dynamics will follow

Regulatory implications

- A more stringent and organised system for food waste and expiry management in Quick commerce could help maintain quality standards. Further harmonising food compliance requirements across traditional retail, e-commerce and Quick commerce could help in level playing field
- Support kirana modernisation through targeted digitisation could help TT to maintain its relevance

4

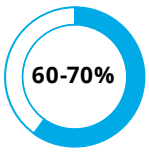
Up to 70 percent of new food launches are now digital-first. New product development will be driven by rapid trend-led innovation and relevance

Substituting, reformulating or replacing ingredients to remain relevant in the market while ensuring continuous innovation without diluting the taste and quality

- **Avoid extremes:** Too few launches miss opportunities; too many dilute impact.
- **Prioritise meaningful innovation:** Aim for one major innovation every 1–2 years.
- **Renovate the core:** Continuously improve existing products to meet evolving consumer needs.



of revenue from new products is viewed as a good benchmark



of new products are launched on Quick commerce/ e-commerce before entering GT or MT.

What does it mean for the industry?

E-commerce and quick commerce are becoming the primary channels for innovation and premiumisation, giving access to new products/new brands and accelerating quality and innovation

Regulatory implications

- Faster, predictable evaluation of novel ingredients, functional foods and new formulations to support rapid product innovation.
- Focus on stricter regulatory scrutiny on higher-risk products while enabling easier compliance for low-risk product variants and reformulations, could help reduce complexities

5

India's low export scale compared to similar peer nations points to a stronger need to accelerate value added processing

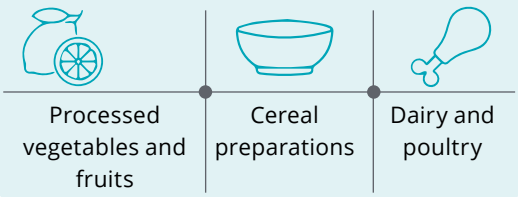
Despite US$50 billion+ food exports; processed foods contribute only ~20 percent of exports

- **Scaling diaspora-led demand** through convenience and ethnic packaged foods
- **Taking Indian-origin foods global,** leveraging the heritage
- **Utilising production strengths** to manufacture for global countries



YoY increase in processed food exports from US$ 4.16 Billion to US$4.56 billion, (During Apr–Jan FY2025–26)

Strong categories



What does it mean for the industry?

Value-added exports form less than 15 percent of India's basket vs 40–50 percent for peers. Same raw material however has a 3–5x export realisation when food is processed

Regulatory implications

- Improving alignment of domestic standards with key export markets to reduce rejections and duplicate compliance costs
- Consistent export policies, enhancing traceability and testing infrastructure in export-oriented value chains, particularly spices, marine and fresh produce

6

Technology is rapidly evolving from a back-end enabler to a core driver of forecasting accuracy, innovation speed and consumer relevance

AI and analytics are embedded across the value chain, from demand planning to manufacturing and marketing. The shift underway is towards faster, more consistent decision-making

- **AI compressing the innovation cycle:** From trend signal to validated concept to digital-first launch
- **Hyper-personalised engagement at scale:** Marketing tailored down to pin-code and consumption pattern
- **Smart manufacturing for quality at speed:** Computer vision and Internet of Things (IoT) lifting consistency and throughput

~84 percent of Indian CEOs are raising new capital or reallocating budgets to invest in generative AI, against a global average of 70 percent

Technology has reduced time-to-insight in the trend-to-concept phase by **approximately 30 percent to 60 percent**

What does it mean for the industry?

AI becomes an important layer across the value chain, both in the back-end and front-end, to enable scale and relevance with efficiency

Regulatory implications

- A more stringent FSSAI framework for AI-designed formulations or precision fermentation could help accelerate new product development (NPD), while maintaining safety standards
- Additional capex subsidy within Pradhan Mantri Formalisation of Micro Food Processing Enterprises (PM-FME) for AI/IoT/automation could accelerate technology adoption

7

Regulatory excellence can become a competitive advantage

Reforms have strengthened food safety and ease of doing business, but continued regulatory simplification and implementation clarity will be critical to unlocking the sector's full growth potential

- Recent reforms such as perpetual FSSAI licenses, instant registrations, risk-based inspections, streamlined import procedures and predictable compliance timelines **have improved regulatory efficiency, reduced administrative burden and enhanced business predictability**
- However, **greater clarity and harmonisation around Front-of-Pack Nutrition Labelling (FoPNL)/ High in Fat, Sugar and Salt (HFSS), Extended Producer Responsibility (EPR) mandates,** post-expiry food management, nutraceutical regulations and food additive standards **can further reduce compliance uncertainty** and support innovation-led growth

Way ahead

Taken together, these trends point to a sector that is transitioning towards a more capability-driven and value-focused growth model. The next phase of growth will be characterised not by uniform expansion, but by the ability to identify where value resides, align capabilities to capture it and execute with precision across an increasingly complex ecosystem. Organisations that can successfully integrate consumer insight, product innovation, operational excellence and technological capability will be best positioned to capture disproportionate value in what is emerging as one of India's most dynamic and strategically significant industries.

Chapter 1. A new era is unfolding for India's food ecosystem

1.1 India's emergence as a food value engine

India's food sector is entering a critical phase. Long-rooted in agriculture and commodity-driven output, it is now evolving into a system where value addition, differentiation and premiumisation are gaining prevalence. As a result, this is transforming how food is produced, consumed and monetised.

India's food sector is often characterised by a paradox, it is one of the world's largest producers of agricultural output yet remains relatively underpenetrated in processed foods.[1] While this is true, the gap is beginning to narrow in meaningful ways, signalling a broader shift in how economic gains are captured across the sector. India is gradually transitioning from a volume-led paradigm to a more quality-led food system. In this transition, the core of value creation is moving decisively away from farm output and towards consumer-centric, branded and differentiated food products.

1.1.1 Balancing 'volumes and value': The transformation is underway

India's scale in agricultural production is well established. It is among the largest producers globally across key categories, including milk, pulses, rice, wheat, fruits and vegetables. However, the extent of value extraction from this base remains limited. India currently processes only about 12–13 percent of its total food output, compared to 60–80 percent in developed markets, highlighting substantial headroom for growth.[2] However, the opportunity extends beyond increasing processing penetration to also shifting toward more differentiated and premium products.

The same agricultural input can yield materially different economic outcomes depending on its position within the value chain. Raw tomatoes, for instance, generate limited economic surplus, whereas their conversion into sauces, ready-to-cook bases or packaged formats can significantly enhance monetisation. Similarly, milk, traditionally consumed as a staple, commands higher margins when transformed into cheese, yoghurt-based beverages or protein-enriched products.

Across categories, the shift from commodity formats to branded products is emerging as a key driver of expansion. This underscores a structural shift in the sector's growth model from mere volume-led expansion to value accretion within the consumption basket.

1.1.2 A dual transformation: Interplay of evolving demand and supply dynamics

This evolving mindset is increasingly playing out as a strong loop between demand and supply. Evolving consumer preferences are driving the need for greater differentiation, while supply-side innovation is expanding the availability and accessibility of higher-quality output, together accelerating the shift toward more differentiated, higher-quality food choices for consumers.

[1] India at a glance, Food and agriculture organisation

[2] Govt incentives put India's food story at a turning point, Indian express, March 2026

A growing appetite for consuming better

Incremental food spend is being selectively reallocated toward categories that deliver on health, convenience and premiumisation, rather than uniformly expanding the consumption basket.

- Rising demand for benefit-led products such as protein-rich, clean-label and health benefits-focused
- Shifting from full meals and scheduled grocery toward ready-to-eat options and instant, on-demand fulfilment
- Increased emphasis on ingredients, quality and perceived value over affordability only

Supply-side is re-organising to enable value creation

The food ecosystem is transitioning from efficiency-driven supply chains to differentiated, consumer-centric value chains focused on innovation, branding and experience.

- Expansion of differentiated, branded products replacing commodity-led offerings with greater focus on processing, formulation and innovation to enhance value realisation
- Increased role of digital platforms and modern trade in driving discovery and access
- Strengthening of product quality, shelf life and convenience through technology and packaging

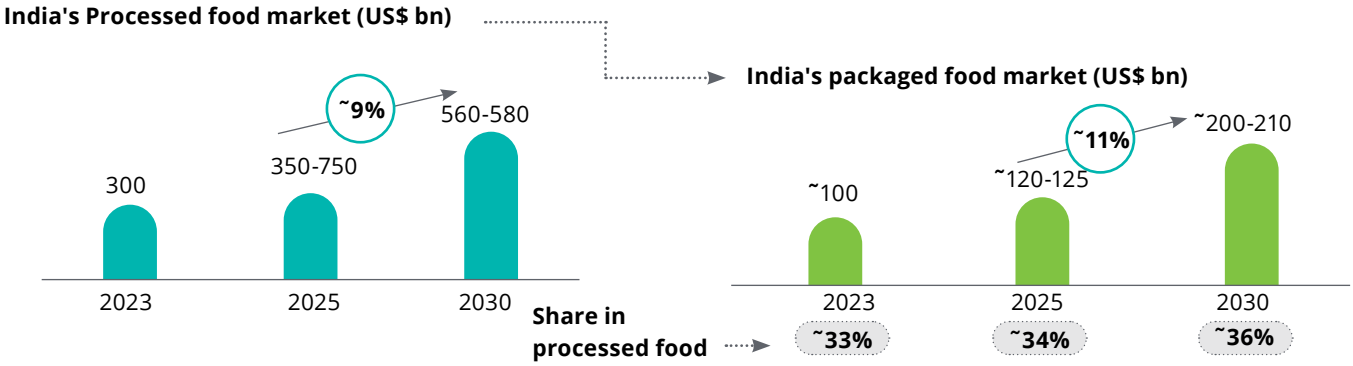
This interplay is fundamentally reshaping growth dynamics in the sector, with both demand and supply evolving in tandem.

A ~US$600 billion processed food opportunity by 2030

Processed food in India is growing rapidly. India's increasing urbanisation, with the urban population expected to reach ~600 million (40 percent) by 2030,[3] is fundamentally reshaping consumption patterns. Additionally, this is leading to parallel growth in packaged food. Factors such as increased migration, growth of nuclear families and time-constrained working youth are driving higher demand for packaged foods. Simultaneously, expanding digital exposure is boosting consumer familiarity and preference for branded packaged foods and the quality associated with it.

Despite these fundamental shifts, the sector remains predominantly unorganised, accounting for around 75–80 percent of the market,[4] thus offering substantial opportunities for organised players to capture market share and deliver greater quality and value to consumers.

1.2 The processed food market is seeing a growth trajectory[5]

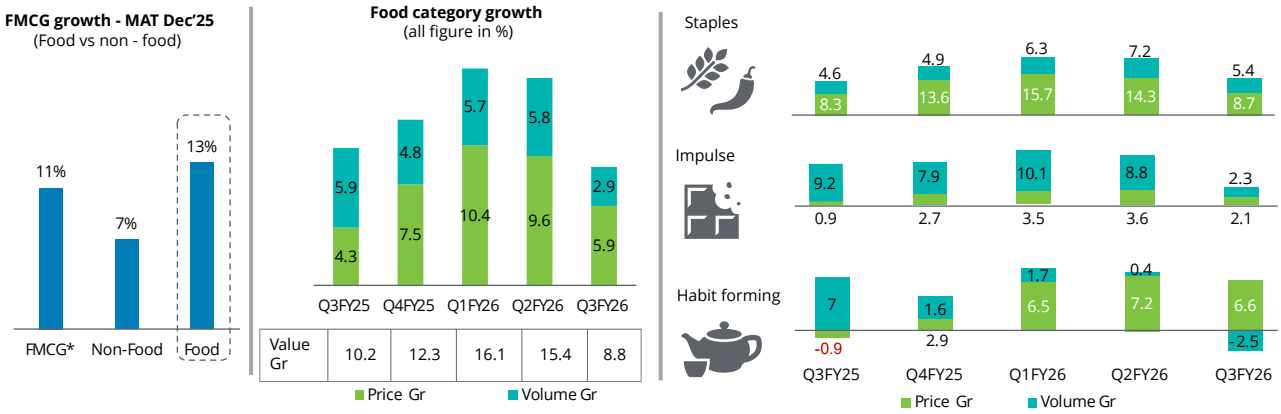


[3] Based on data quoted in India investment grid

[4] Bites of growth: India's packaged food uprising, Motilal Oswal, January 2026

[5] Secondary research, Deloitte analysis

1.2.1 Food is outperforming the Fast-Moving Consumer Goods (FMCG) basket where consumers protect essentials, selectively indulge and adapt habits[6]



Consumption behaviour is evolving, not collapsing. Consumers are spending consciously, mixing essentials with selective, occasion-led indulgence.

Staples remain the backbone of growth, with consumers prioritising core food needs and selectively spending on other categories	Impulse consumption exists in pockets with volumes growing on the back of quick-commerce and new/ emerging brands	Habit categories are fluctuating, as consumers rebalance frequency and shift to alternative choices, especially healthy alternatives

1.2.2 Macroeconomic and demographic tailwinds are further expanding the opportunity

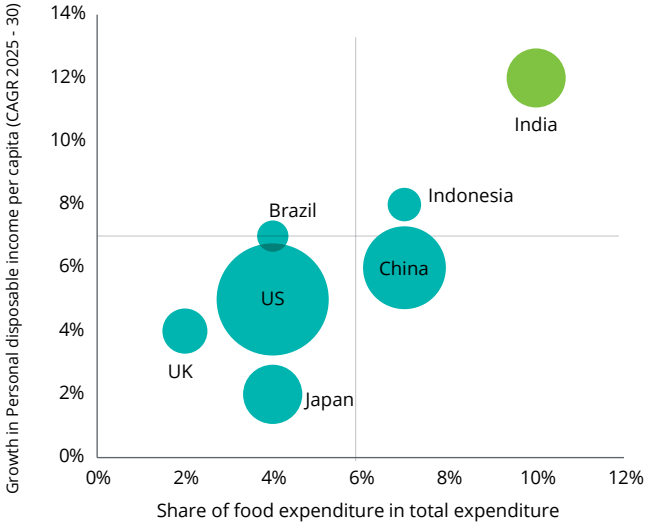
While the transformation is structural, it is being further accelerated by strong macroeconomic tailwinds. India's economy is expected to grow at approximately 6–7 percent annually over the medium term,[7] driving a steady increase in per capita income and expanding the consuming class. This is creating a favourable demand environment for packaged products and premium consumption. Importantly, these trends are not limited to metro markets. Rising incomes, improving infrastructure and increasing digital access are enabling similar consumption patterns beyond metros, significantly expanding the addressable market.

From a triangle to a trapezium

India's consumer pyramid is evolving from a triangle into a trapezium, a structural shift in which SEC A+B households are expected to account for ~45 percent of the population by 2030, up from ~24 percent today.[8]

This creates a broad-based growth tailwind across the food sector, extending well beyond premium categories. Mass brands are also likely to witness sustained growth as consumers from lower strata move up the income ladder. Premiumisation and mass-market expansion are therefore not mutually exclusive; rather, they are parallel outcomes of rising incomes across different consumer cohorts.

Favourable macro and industry dynamics – an opportunity for growth[9]



Size of the bubble suggests market demand

[6] NielsenIQ, Quarterly FMCG Snapshot, March 2026

[7] India transitions towards a high-growth and resilient economy, PIB, Economic survey 2025-26

[8] Secondary research, Industry experts interviews

[9] Statistics and data sourced from EIU, Secondary research, Deloitte analysis

Lower penetration and rising income: A long-term opportunity for Indian market

India represents a rare convergence of high industry growth, expanding disposable incomes and a structurally under-monetised food market, positioning it as the most compelling opportunity for processed food investment in the 2025–30 period. The elevated share of food in total consumer expenditure indicates an established spending habit; the strategic imperative is to redirect that spend toward value-added and premium categories. Early market entry is critical to securing category leadership ahead of the intensified competitive activity as income levels rise.

India's food sector is entering a phase where competitive shifts at the company level will begin to translate into structural advantages at the industry level. As leading players scale processed and branded categories, the sector is moving beyond incremental growth towards a more formalised, capability-led growth. This will not only reshape competitive intensity domestically but also strengthen India's ability to participate in higher-value segments of the global food market.

Three shifts that will define India's emergence as a food engine

- **Winning across price tiers to balance scale and profitability**
  Players will simultaneously serve mass demand (driving scale) and premium segments (driving margins), creating a structurally-balanced growth model
- **Building branded ecosystems**
  Growth will be anchored in brands, proprietary formulations and differentiated formats that move beyond commoditised offerings
- **Using India's cost advantage for global competitiveness**
  Strong processing capabilities and cost efficiency will enable India to compete not just as a low-cost exporter, but as a supplier of differentiated, globally relevant food products



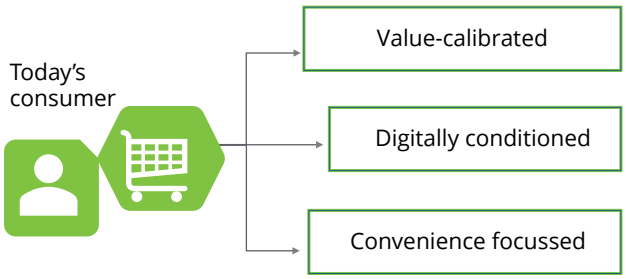
Chapter 2: The new food economy: Evolving consumers and changing market dynamics

India's food economy is no longer defined by a single growth curve. It is increasingly characterised by a behaviour in which frugality and indulgence coexist, experimentation runs parallel to habit and value-seeking does not preclude premiumisation. This is not a temporary phase driven by macro volatility. It is a structural shift in how Indian consumers purchase food.

While the overall packaged food market in India continues to grow at ~10 percent annually,[10] value-added segments such as health foods, ready-to-eat meals and functional nutrition are growing at more than 15–20 percent,[11] significantly outpacing the market. This widening gap highlights that incremental value is coming from specific pockets rather than being uniformly distributed. Having said that, growth in the food processing sector will not come from uniform expansion, but from identifying and capturing multiple, parallel demand curves. As a result, the Indian food economy today is a multi-intent system, where consumers actively curate their consumption baskets based on context, occasion and perceived value.

2.1 Understanding the new consumer: A multi-dimensional shift in how consumers behave

The Indian food consumer today is best understood through three defining dimensions: value calibration, digital influence and time scarcity. These dimensions do not operate independently; rather, they interact to create a consumer who is selective, informed and context driven.



2.1.1 The value-calibrated consumer: Rise of the 'split basket'

India's food economy is increasingly characterised by a structural bifurcation in consumer intent, where value-conscious behaviour and premium indulgence coexist within the same household and often within the same shopping mission. This 'split basket' behaviour reflects a transition from static consumer archetypes to more dynamic, context-driven decision-making. Consumers are no longer consistently premium or value-oriented; instead, they optimise choices based on occasion, functional utility and perceived value. Core essentials continue to be evaluated through a lens of affordability, while categories such as staples and health-oriented products are selectively premiumised. Consequently, growth is becoming increasingly uneven, with disproportionate value concentration in high-intent, value-added segments despite steady expansion of the broader packaged food market.

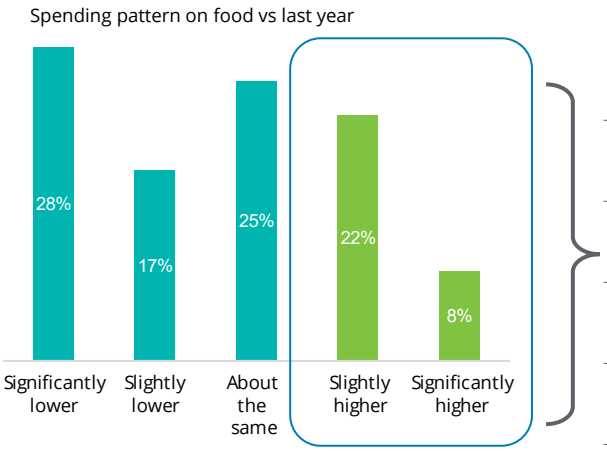


[10] Secondary research and Deloitte analysis

[11] Industry expert interviews and other industry reports

Consumer spending behaviour

~1 in 3 consumers have increased their spending on packaged food from last year[12]



% responses on consumer spending behaviour for those who increased spending

	Increased quantity/frequency	Shifted to premium options	Tried new products
Dairy	**46%**	22%	12%
Snacks	25%	17%	**26%**
Staples	28%	**28%**	13%
RTE	20%	13%	20%
Health/ wellness	**43%**	25%	19%

Note: Percentages do not add up to 100% for each row, as the remaining % respondents have not increased their spend in that category

- Consumers are balancing premium with volume – staples and wellness products see more premiumisation than snacks, while daily dairy based see more volumes
- Health and wellness are a power category - people are buying more and trading up
- Snacks are driven by curiosity where consumers are experimenting with new products, indicating high switch behaviour

This shift in consumer behaviour is mirrored by a corresponding structural response from brands, most notably through the adoption of a 'barbell' strategy. As consumption patterns polarise, brands are concurrently designing for two distinct consumption logics: functional premiumisation targeted at affluent consumers seeking quality, efficacy and differentiation and value simplification aimed at price-sensitive cohorts prioritising affordability and reliability. This evolution extends beyond pricing into a comprehensive portfolio rearchitecture, encompassing product design, pack-price configurations and innovation pipeline, requiring brands to simultaneously justify premium propositions while maintaining accessible entry points.

At this point, India requires a dual strategy: serving the country's 1.4 billion consumers with affordable, high-volume staples, while targeting the top 100 million consumers with premium offerings that deliver gross margins of 25–27 percent.[13] Collectively, the emergence of the split basket and the barbell portfolio reflects a broader rewiring of the food economy. From a single, linear demand curve to multiple parallel consumption trajectories. Growth will increasingly be driven not by scaling uniform propositions, but by the ability to identify and serve divergent micro-intents with precision. The strategic risk lies in remaining anchored in the middle, where offerings lack both meaningful differentiation and price competitiveness.

2.1.2 Digitally conditioned consumer: Acceleration of awareness and experimentation

The expansion of digital ecosystems has fundamentally reshaped how consumers discover and evaluate food products. With increasing access to the internet, rising digital users and a rise in online shopping, digital platforms have become a new source of discovery as well as consideration.

With over 1 billion internet users, exposure to new formats, brands and global consumption trends has increased significantly. India currently has ~300 million online shoppers, with the next wave expected to add ~100 million internet users and ~150 million online shoppers.[14]

The most significant shift is the compression of the consumer journey. Exposure to influencer content,

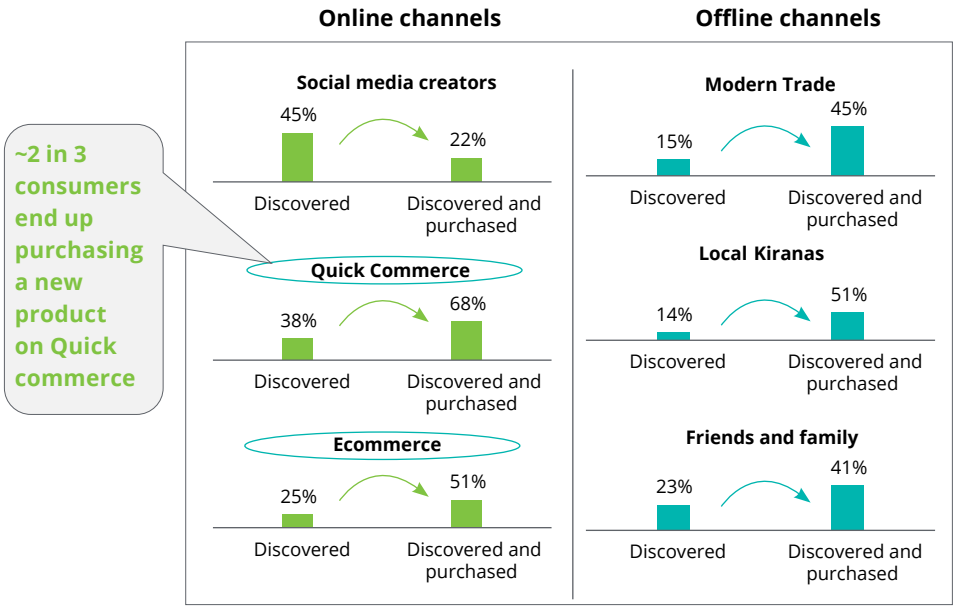
[12] Insights from Deloitte consumer survey 2026

[13] Industry expert interviews

[14] The 250 billion commerce frontier report, Google-Deloitte, April 2026

reviews and product-led storytelling and the rise of quick commerce platforms have reduced the time between awareness and trial, particularly in high-frequency, low-risk categories. This has enabled newer brands to gain visibility and access, weakening the historical dependence on physical discovery and reliance on legacy brands. While core categories continue to exhibit certain loyalty, discretionary and exploratory categories are seeing increased experimentation, with consumers rotating across multiple brands rather than committing to one.

The graph below shows a strong skew towards digital discovery, indicating that consumer journeys are increasingly initiated online, even if purchases remain multi-channel[15]



- Platforms including q-commerce/e-commerce show >2x conversion while social media behaves more like awareness media than a sales driver
- Offline behaves like a 'Planned route' rather than a discovery channel. Shoppers largely enter stores with pre-formed intent, using them primarily to execute planned or repeat purchases rather than exploring new options, but once they discover, conversion is high, led by shopkeeper guidance and trust

Digital is also reshaping evaluation and expectations, as consumers increasingly benchmark products on ingredients, quality and peer feedback, raising the bar for product performance. Access to reviews, influencer opinions and side-by-side comparisons has made decision-making more analytical and less brand-assumption driven, particularly in categories such as health foods and packaged snacks. As a result, products are no longer competing within a narrow category set but against a broader, often global benchmark, increasing pressure on brands to consistently deliver on both functional claims and experiential quality.

2.1.3 Convenience-focused consumer: Changing consumption behaviour and occasions

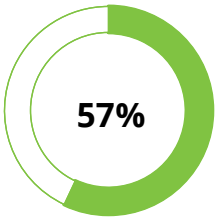
Convenience is emerging as a structural driver of food consumption in India, reshaping both purchase behaviour and consumption occasions. With increasing urbanisation and busy schedules, this behaviour is becoming increasingly prominent.

First, quick commerce is reducing the friction between intent and fulfilment, enabling instant access to snacks, beverages, desserts and meal solutions. This is increasing purchase frequency, driving smaller and more impulse-led baskets and shifting consumption from planned stock-ups toward immediate-need purchases. Second, greater convenience is expanding consumption occasions beyond traditional meal structures. The rise of late-night snacking, impromptu indulgence, solo consumption and in-home social occasions is accelerating demand for ready-to-eat (RTE), ready-to-cook (RTC), snackable and single-serve formats.

Importantly, convenience in India is evolving beyond timesaving towards enabling spontaneity and low-effort consumption. However, while convenience can drive trial and frequency, sustained growth will still depend on factors such as taste, value and health alignment.

[15] Insights from Deloitte consumer survey 2026

Survey insights show increasing inclination towards convenience formats[16]



Consumers have started relying on quick commerce for the convenient fulfilment of urgent and immediate needs, thus increasing frequency of purchase



Consumers have even started buying planned items/ purchases through quick commerce, citing at-home digital convenience

2.2 Demand shifts: From products to tangible outcomes

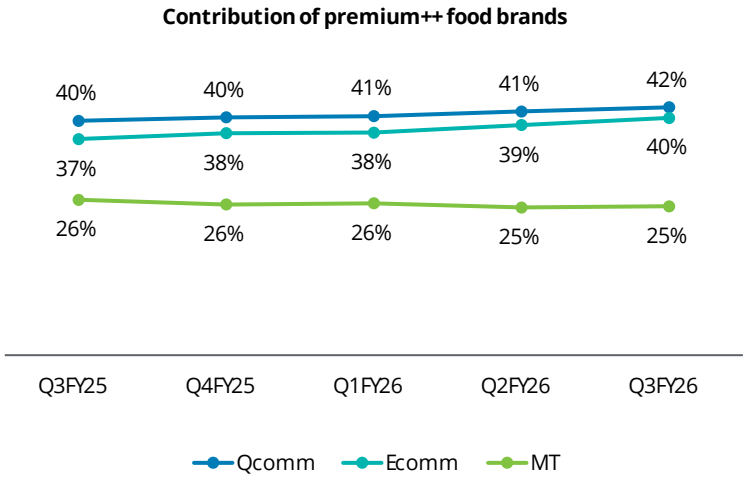
As consumer behaviour becomes more contextual and intent-driven, demand in India's food sector is no longer organised around traditional product categories. Instead, it is increasingly shaped by the outcomes consumers seek to achieve through consumption, leading to a redistribution of growth across formats, price points and occasions.

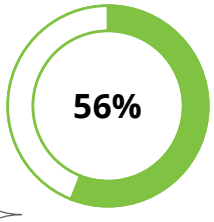
2.2.1 Value migration: Growth moving towards differentiated offerings

The most visible shift in demand is the movement away from commoditised, price-led consumption towards differentiated, value-added products. Consumers are increasingly willing to pay a premium for products that deliver clear and tangible benefits, whether in terms of quality, experience or functionality. This migration is less about premiumisation from a price increase perspective but also about justification of spend. Consumers are not upgrading indiscriminately; they are upgrading where the value proposition is clear and defensible. This explains why growth is disproportionately concentrated in segments such as branded packaged foods, functional nutrition and premium snacking, even as price sensitivity persists in basic categories.

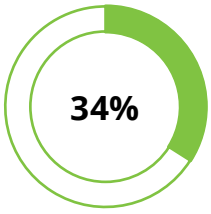
Increasing preference towards differentiated assortment and premium products

High contribution of premium brands to the food basket[17]





Of the premium++ basket includes habit forming and impulse categories



Share of digital-first brands in overall QComm channel – driving the premiumisation wave

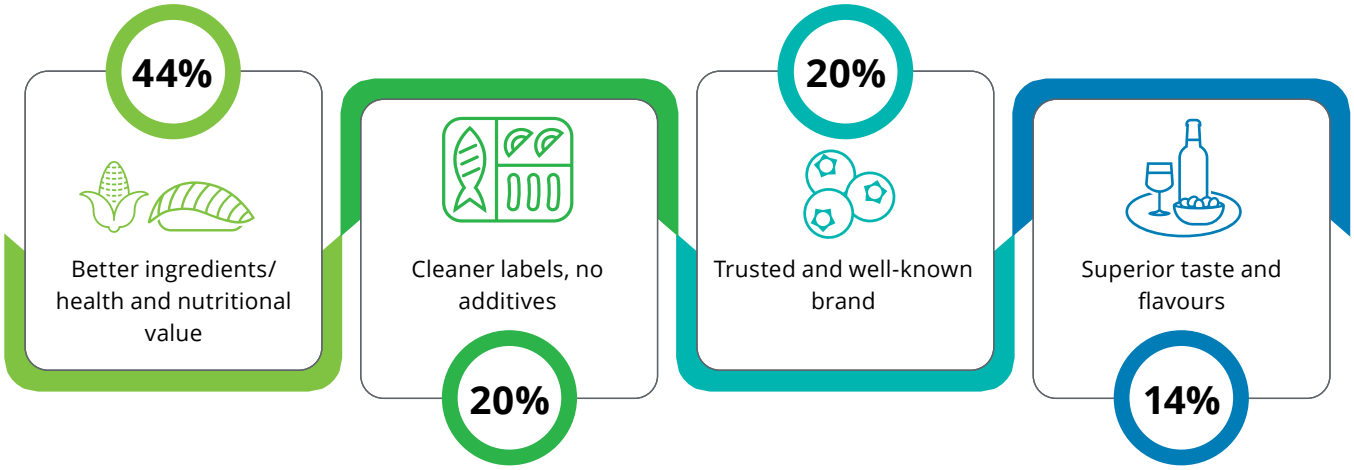
Note: Premium++ Brands are having ASP >1.2x of the category

[16] Insights from Deloitte consumer survey 2026

[17] NielsenIQ FMCG quarterly snapshot, OND, 2025

For consumers, **a premium product is not defined solely by a higher price,** but also by the additional factors that justify its premium positioning.

What do consumers perceive of premium products?[18]

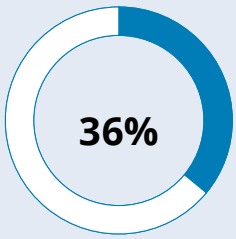


2.2.2 Health as a structural filter: Redefining the boundaries of consumption

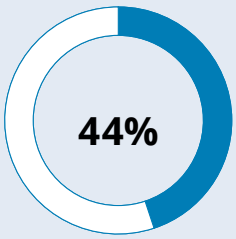
Health is increasingly acting as a key filter in food consumption rather than a niche preference. Consumers are not only seeking healthier products but are actively excluding products perceived as high in sugar, artificial or nutritionally poor. Protein and low-GI are emerging as durable trends and not just temporary fads, driven by diabetes awareness and health consciousness. The shift is visible in the growing scrutiny of ingredient labels and stronger demand for everyday health-oriented formats. Categories such as low-sugar beverages, baked snacks, millet-based products, sugar-free confectionery, probiotic offerings and high-protein foods are witnessing stronger consumer traction as health becomes embedded into routine consumption rather than occasional wellness purchases.

Importantly, this trend is also reshaping legacy categories. Traditional indulgence-led segments are increasingly under pressure to reformulate, premiumise or launch 'better-for-you' variants to remain relevant. Large incumbents are therefore investing in clean-label propositions, protein fortification, reduced sugar formulations and natural ingredient positioning.

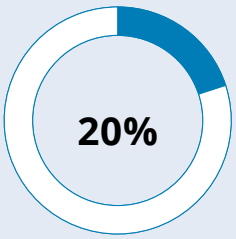
This reflects a broader structural shift: consumers are no longer evaluating food only on taste and affordability, but increasingly on whether it aligns with long-term wellness expectations.[19]



consumers have started buying more healthier options in their usual purchases of packaged food, including, high protein, low sugar content[18]



of the increase in packaged food spending since last year is being directed toward purchasing a greater quantity of healthier food items[18]



consumers are prioritising quality and health, over price and willing to pay higher for such products[18]

[18] Insights from Deloitte consumer survey 2026
[19] Insights from Deloitte consumer survey 2026



Acceleration in protein focused launches with dairy, snacks, cereals witnessing protein fortification

Demand for low/no sugar products has expanded beyond diabetic consumers into mainstream urban households

Wellness-focussed brands are scaling driving focus on digestive properties, alternate grains and diet-specific alternatives

2.2.3 Emergence of new food categories: Growth beyond traditional boundaries

Alongside the health shift, India's food market is also witnessing the emergence of entirely new consumption categories that were previously insignificant or absent at scale. Unlike the earlier trend, which focuses on filtering and upgrading existing consumption, this shift is about the creation of new demand pools and consumption occasions. This, in turn, has created demand for new product categories, especially inspired from global flavours, cuisines and trends.

These categories include plant-based food,[20] global formats such as Korean instant noodles and sauces, Japanese ready-to-eat formats, Kombucha,[21] café-style ready-to-drink (RTD) beverages, bubble tea mixes, gourmet mayonnaise and pasta sauces, artisanal breads and ready-to-cook global cuisines. Their growth reflects changing lifestyles, rising experimentation, global exposure through digital media and increasing willingness among younger consumers to try formats beyond traditional Indian food structures.

Global cuisine-led packaged foods and RTE meals have seen accelerated adoption especially among Gen Z consumers.

Plant-based food market in India is projected to grow at ~25–30% CAGR, expanding rapidly.[20]

The kombucha category has witnessed ~25–30% annual growth in major metros, indicating rapid adoption of functional beverage formats.[21]

The growth of these segments is being enabled by digital-first discovery, influencer-led food trends, premium retail formats and rapid distribution through e-commerce and quick commerce. Importantly, many of these categories are not constrained by legacy consumer perceptions, allowing brands to define new value propositions from inception, focusing on convenience, functionality, indulgence, sustainability or global appeal.

2.3 Channel interactions are becoming more fluid and contextual

Consumer purchase journeys are becoming increasingly fluid and need-state driven. Consumers no longer view channels in isolation or follow fixed paths to purchase; instead, they move dynamically across channels based on occasion, convenience, immediacy, discovery and value. The rise of quick commerce, e-commerce and digital discovery platforms has fundamentally reshaped expectations around accessibility and shopping behaviour, making channels an integrated part of the overall consumption journey rather than standalone purchase touchpoints.

2.3.1 Decoupling of discovery and purchase: Redefining brand-building and conversion

One of the most structural changes in the ecosystem is the separation of discovery and purchase. For food companies, this implies that brand-building and sales conversion are no longer co-located within the same channel. Discovery is increasingly driven by digital ecosystems such as social media, creators, online commerce and content platforms, while purchase may occur through quick commerce, e-commerce or neighbourhood stores depending on immediacy and need. This decoupling fundamentally alters how brands must invest across the funnel.

For manufacturers, the implication is twofold. First, brand equity is increasingly built outside traditional

[20] The rising plant based sector in India, IBEF

[21] From Citrus to Kombucha: The Next Wave of Cafe Flavours in 2026

retail environments, requiring a stronger focus on digital storytelling, product education and content-led engagement. Second, conversion optimisation must be tailored to each fulfilment channel, as the triggers for purchase differ significantly across them.

2.3.2 Non-linear but integrated journeys: Implications for portfolio and availability

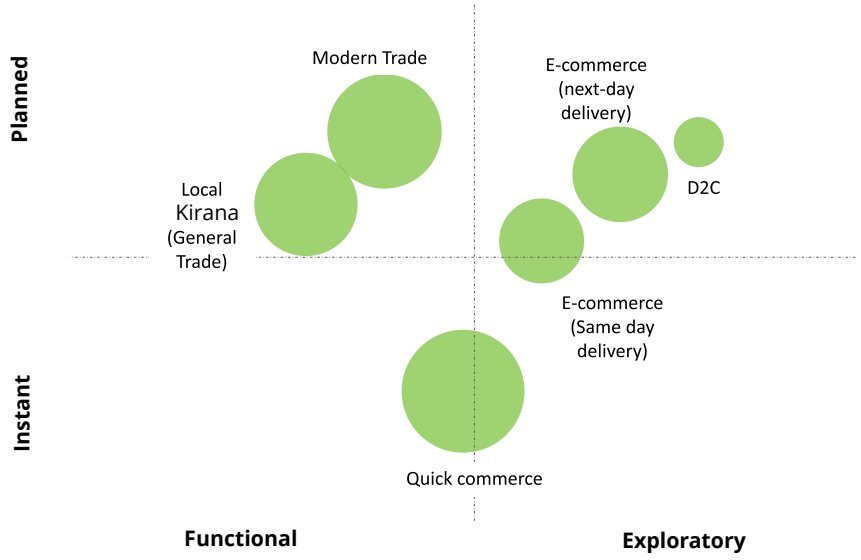
The emergence of non-linear consumer journeys means that consumers may interact with a product across multiple channels before purchase. For food manufacturers, this increases the importance of consistency in availability, pricing and product representation across channels. A product discovered online but unavailable on a preferred purchase channel risks losing conversion. Similarly, inconsistencies in pricing or pack formats across channels can disrupt trust and decision-making. This creates a need for channel-synchronised portfolio strategies, where stock keeping units (SKUs), pack sizes and pricing tiers are aligned to ensure seamless transitions across the journey. It also elevates the importance of demand visibility and supply chain responsiveness, as stock-outs or delays in high-frequency channels can directly impact consumption.

2.3.3 Channel specialisation: Different channels cater to different needs

Channel choices are becoming more need-state driven, with consumers selecting channels based on immediacy, convenience, exploration, value, or occasion-specific requirements. As a result, channels are increasingly shaping demand patterns and consumption behaviour, rather than simply facilitating transactions. *Kirana* stores continue to dominate in semi-urban and rural geographies favouring routine and replenishment-driven consumption, credit availability. They also cater to urban consumers in many pockets including habitual behaviour of planned purchase and also impulse on some occasions. Modern trade enables discovery and premium positioning, supporting wider assortments and higher-value SKUs. E-commerce facilitates comparison and variety, making it suitable for niche and emerging categories. Quick commerce, in contrast, is optimised for immediacy, favouring high-frequency, impulse-driven products and smaller, consumption-ready packs. D2C channels serve as platforms for differentiation and storytelling, particularly for premium or niche offerings.

The implication is that a 'one-size-fits-all' portfolio is no longer effective. Manufacturers must increasingly design **channel-specific assortments and pack architectures,** aligned to the role each channel plays in the consumption journey.

Consumer x Channel behaviour – Mapping channel preference with time and experience[22]



Note: Bubble size denotes the sum of all situation values, indicating the preference total across all situations

- Quick Commerce has become the default channel for immediate consumption and increasingly a daily habit engine.
- Kirana continues to own trust and freshness, but is losing relevance in discovery and assortment-led missions.
- Modern Trade remains the strongest 'shopping destination' channel, winning on browsing, variety, and planned basket building.
- Traditional e-commerce is getting squeezed between Quick commerce on speed and Modern Trade on exploration, while same-day e-commerce lacks a sharply differentiated role in the consumer mind today and is more of an assortment story

[22] Analysis based on the Insights from Deloitte consumer survey 2026

Channel x Situation index: Which channels command stronger ownership across a particular situation[23]

Situation	Kirana	MT	Qcom	Ecom SD	Ecom ND	D2C
Discovering new products	0.7x	1.0x	2.2x	0.8x	0.8x	0.4x
Urgent needs	1.5x	0.3x	3.4x	0.6x	0.1x	0.1x
Assortment/variety	0.4x	1.9x	1.1x	1.0x	1.4x	0.2x
Trust in quality/ freshness	2.0x	1.1x	1.3x	0.7x	0.5x	0.4x
Bulk/planned monthly shopping	1.4x	2.0x	0.7x	0.7x	1.0x	0.2x
Price/discounts	0.7x	1.9x	0.6x	0.7x	1.9x	0.2x

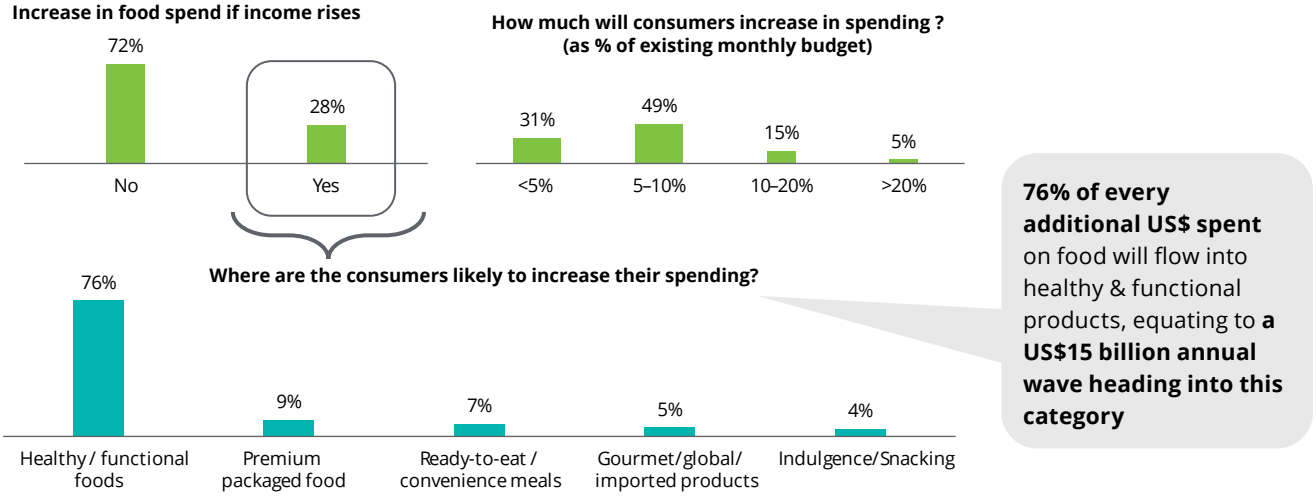
Note: Heatmap values represent a "Situation Dominance Index", calculated as the share of respondents selecting a channel for a given use case divided by the average share across all channels for that use case. An index >1.0 indicates over-indexing (stronger-than-average channel preference), while an index <1.0 indicates under-indexing. Darker shades represent stronger channel ownership of the respective consumption mission.

- Quick commerce has emerged as the dominant channel for immediacy-led and impulse discovery missions, indicating that convenience is increasingly shaping even product exploration behavior in food.
- Modern trade and E-commerce are structurally owning planned, value-seeking and assortment-led missions, highlighting the rise of comparison-driven and stock-up shopping behavior across both offline and online ecosystems.
- Trust and freshness remain disproportionately anchored in proximity-led physical channels such as *kirana,* suggesting that sensory assurance and familiarity continue to matter deeply in food purchase decisions.

2.4 The opportunity ahead

Going forward, food consumption in India is expected to become increasingly fragmented, need-state driven and value differentiated, with consumers seeking products and experiences that align more closely with their lifestyle, health priorities, convenience expectations and consumption occasions. As discovery expands and channels become more integrated, demand is likely to shift further toward personalised, premiumised and occasion-specific consumption rather than broad-based category growth.

28 percent of urban households are ready to open their wallets wider if their incomes rise,[23] equating to an opportunity of generating **~US$20 billion in incremental food spending** in urban India.[24]



Note: Survey insights were extrapolated using total urban Indian households (~9 crore). A weighted average of existing monthly spend buckets yielded a baseline of INR6,500/household/month. The 28% of respondents willing to increase food spend on income rise were applied to this universe, with a weighted average intended increase of ~8% of existing budget, arriving at INR520/month incremental per willing household. Annualised and scaled, this yields a total incremental urban food spend of $19.3B/year. The 76% destination share for Healthy/Functional foods was then applied to arrive at US$14.7B flowing into this category annually.

[23] Insights from Deloitte consumer survey 2026

[24] Deloitte analysis

Chapter 3. Powering the next phase of growth

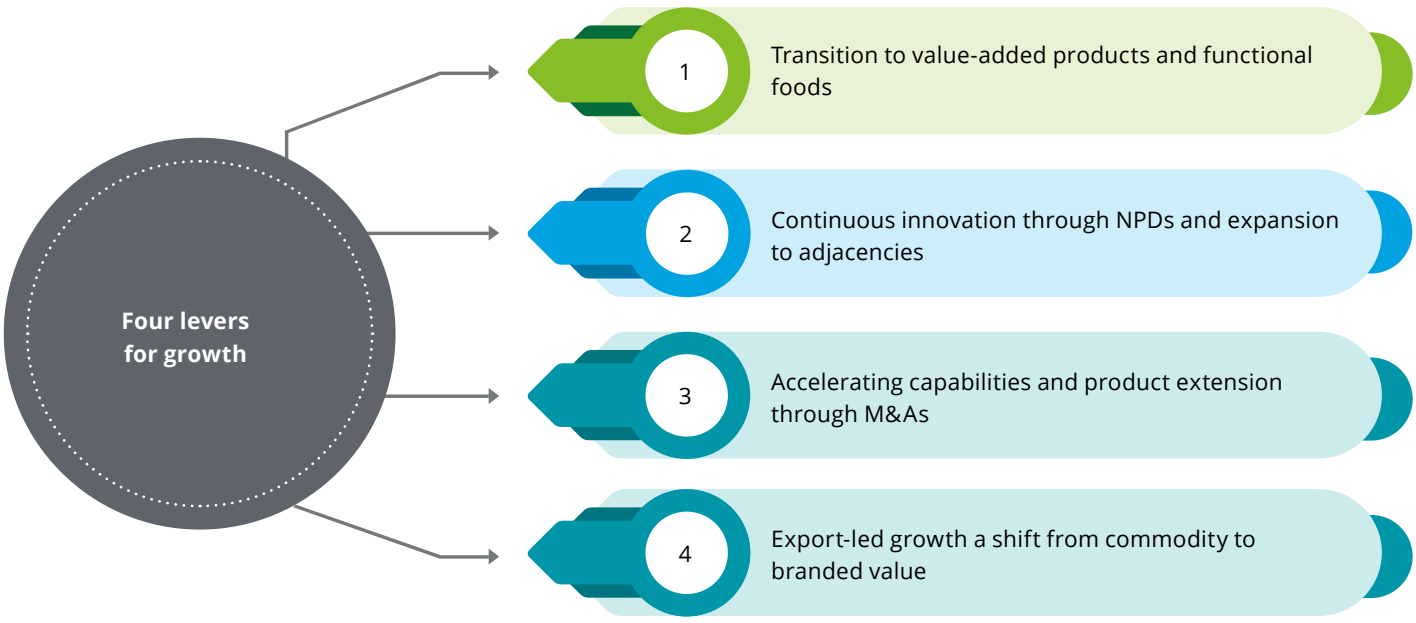
Food companies in India are increasingly recalibrating their growth strategies in response to evolving consumer demand patterns and shifting industry dynamics. Growth is no longer being driven solely through scale expansion within core categories; instead, companies are pursuing multiple growth pathways through the right mix of products, value creation and brand messaging. At the same time, manufacturers are carefully balancing the channel mix to optimise both revenue growth and profitability, given the differing economics and consumer roles across TT, MT, e-commerce and quick commerce. This is also driving a shift in branding and marketing approaches, with companies investing more heavily in digital discovery, targeted consumer engagement and channel-specific brand building to remain relevant in an increasingly fragmented consumption landscape.

3.1 Growth Pathways: Key levers for incremental revenues

The evolution of India's food processing sector reflects a clear shift from scale-led expansion to capability- and portfolio-led growth. As demand fragments and value pools concentrate, companies are increasingly prioritising return on capital, speed to market and portfolio mix.

Across the market, value-added portfolios, spanning packaged food, health-oriented products, convenience formats and premium offerings are emerging as the primary engines of growth, supported by stronger pricing power and improved margin structures. This aligns with consumer behaviour, where incremental spending is increasingly directed toward categories that deliver quality and functional or experiential value. At the same time, expansion is also focussed on continuous innovation through NPD and expanding to **adjacencies,** with companies leveraging existing brand equity, distribution and capabilities to enter behaviourally aligned categories.

Taken together, growth is becoming more **disciplined, targeted and capital-efficient,** requiring companies to align portfolio expansion, capability building and capacity investments with clearly defined value pools.



3.1.1 Transition to value-added products and functional foods

The most significant shift is elevating value-added portfolios from extensions to core drivers of growth and profitability. India's food processing sector is expected to grow at a strong 11–13 percent CAGR from 2025 to 2030,[25] driven by rising demand for value-added products, improved operating profitability and expanded product mix. For instance, by 2027, value-added products in dairy are expected to account for about 45 percent of the processed food segment, up from 42 percent in 2025.[26] Food processing companies are expected to invest ~INR6400 crore over FY26–FY27 to expand value-added capacities, strengthen supply chains and add milk-processing infrastructure.[27]

Additionally, packaged food spanning health-oriented products, convenience formats and premium offerings is growing at 1.5–2x the rate of traditional categories[28] and delivering structurally higher margins due to differentiated positioning and lower price sensitivity. In most cases, these account for a smaller share of volumes but a significantly higher share of profits, making them central to margin expansion strategies.

Health and protein-oriented products currently represent a small share of total portfolio revenue, but the trajectory is moving upward, with approximately 70 percent of new product introductions having a health or functional claim orientation.[29] There is a large unbranded-to-branded upgrade runway across staples: e.g., 40 percent of the salt market is still no-name/loose. Salt penetration is 99 percent, but branded penetration is only ~50–60 percent. Per capita salt consumption in India (10g/day) is 2x the global average, creating a health-led upgrade opportunity to low-sodium variants.[30]

Formalisation of staples: a large untapped growth opportunity

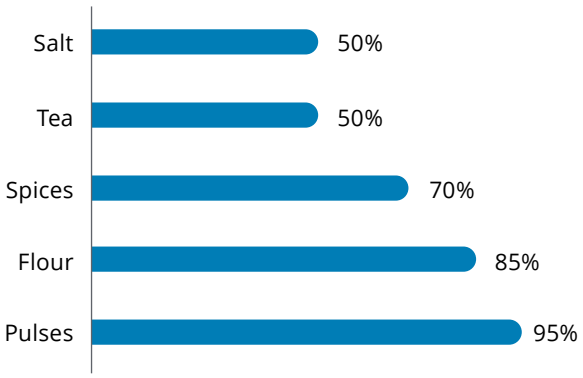
One of the most significant growth opportunities in India's food sector lies in the continued formalisation of staple categories, as consumers gradually transition from loose and unbranded products to packaged and branded alternatives. Rising incomes, increasing awareness of food safety and hygiene, expanding modern retail and e-commerce penetration, and growing demand for consistency and quality assurance are accelerating this shift.

A huge headroom for the penetration of branded staples[31]

The trend is particularly evident among India's emerging middle-class consumers, who are increasingly prioritising trust, convenience and product reliability over purely price-led purchase decisions. As a result, branded staples are gaining share across categories that have historically been dominated by loose and unorganised trade.

Despite this momentum, the headroom for growth remains substantial. Unbranded products continue to account a large share, which indicates huge market for branded products. As retail formalisation deepens and branded players expand their reach, these categories offer a significant runway for premiumisation and market consolidation.

Share of unbranded/loose staples[31]



[25] Food industry reports, Deloitte analysis
[26] Value added dairy products share may touch 45% in FY 27, Crisil outlook, December 2025
[27] Value added dairy products share may touch 45% in FY 27, Crisil outlook, December 2025
[28] Industry expert interviews, secondary research
[29] Industry expert interviews
[30] Industry expert interview
[31] India Consumption report 2025, 3one4 capital



Among staples, flour and pulses present particularly attractive opportunities. Flour has traditionally been one of India's largest unorganised food categories, with many households relying on local chakki mills rather than packaged flour. However, changing lifestyles, increasing urbanisation and a growing preference for hygienic, standardised products are driving the shift towards branded offerings.

Rice, while slower shift, is also witnessing a gradual but meaningful transition towards packaged and branded products. Categories like spices are also undergoing rapid formalisation, with industry estimates suggesting branded spices could account for nearly half of the category over the coming years as consumers increasingly seek authenticity, quality assurance and product traceability. While economic pressures may influence consumers' choice of brand or pack size, the underlying drivers of staple formalisation remain firmly intact. Consequently, branded staples are expected to remain one of the most attractive long-term growth opportunities within India's food sector, particularly in categories such as atta, rice, pulses and spices, where large portions of consumption continue to reside in the unorganised market

Key facts and stats[32,33]

- **~85-90% unbranded market,** for ATTA earlier. Organized now commands ~20–30% in many urban & semi-urban markets.
- **The India packaged rice market** size reached 13.68 Million Tons in 2025 and is projected to reach 21.09 Million Tons by 2034
- **Branded spices** expected to grow at a rate of 15-16 percent and can touch almost 50 percent of the total market
- **Monthly allocation to processed food & beverages rose** from INR113 to INR406 (rural) and INR236 to INR776 (urban) in 2023-24 over 2011-12, signalling a move from loose staples to packaged, branded options.

A potential opportunity to capture the meat market in India

India's meat market represents a large and growing opportunity, supported by a broad consumer base, rising disposable incomes, and increasing consumption of protein-rich foods. Changing lifestyles, urbanisation, and greater acceptance of packaged and processed products are driving demand across meat, fish and eggs. While a significant share of the market remains urbanisation, growing focus on hygiene, convenience and quality is creating opportunities for modern processing, cold-chain infrastructure and branded offerings in both domestic and export market.

[32] India Packaged Rice Market, IMARC group

[33] Decoding the Indian spice market | Shift from unbranded to branded spices won't be quick, Moneycontrol

Key data at a glance

8 out of 10[34]
Adults (15–49 age) consume animal sourced protein

10.50 MT[35]
Meat produced in FY24-25
4th rank globally

149 Bn[36]
Eggs produced in FY24-25
2nd rank globally

197.75 lakh tonnes[37]
Fish produced in FY24-25
2nd rank globally

$60 Bn[38]
Indian domestic meat market in 2025
$124B by 2034 @ 8.42% CAGR

Poultry dominates the meat market, accounting for approximately 49 percent of output, followed by buffalo (19 percent), goat (15 percent), sheep (11 percent), pig (4 percent) and cattle (2 percent).[39] The meat and poultry processing sector is projected to grow at a 12.60 percent CAGR from 2025 to 2033.[40]

South India, particularly Andhra Pradesh, Telangana and Tamil Nadu, accounts for 34 percent[41] of the domestic meat market and leads the shift towards organised production, supported by integrated poultry operations, supermarket cold chains and rapid growth in quick-commerce meat delivery. Processing levels remain relatively low, with poultry processing at 6 percent and meat processing at 34.18 percent,[42] highlighting significant scope for modernisation and value addition.

Key demand drivers

- Rising awareness of protein-rich diets is increasing consumption of meat, fish and eggs.
- Consumers are shifting from wet markets to hygienic, packaged and traceable products.
- Quick-commerce, online meat platforms and modern retail are improving access to chilled and processed products.
- Growing demand from QSRs, restaurants and food processors is supporting consumption of standardised meat and egg products.
- Demand for ready-to-cook seafood, filleted fish, branded eggs, and other value-added products continues to increase.

Key trends

- Companies are adopting vertically integrated models spanning feed, farming, processing, cold chain and retail.
- Companies are expanding value-added product portfolios including ready-to-cook, marinated, frozen poultry and processed seafood offerings to cater to convenience-driven consumers.
- Companies are launching premium and branded offerings such as specialty cuts, certified meat, portion-controlled packs and differentiated seafood products to capture higher-value consumer segments.

Export Potential

$ 7.4 Bn[43]
Marine products export in FY24-25

$ 4.396 Bn[44]
Meat exported in FY24-25
includes buffalo meat, poultry products, sheep/goat meat, animal casing and processed meat

79[45]
APEDA-certified abattoirs cum meat processing plants

$2.05[46]
Average export price/kg for Indian Carabeef

[34] Meat consumption in India, Data for India, February 2025
[35] BAHS report, DAHD 2025
[36] BAHS report, DAHD 2025
[37] Fish production has increased to 197.75 lakh tonnes in FY 2024-25 from 95.79 lakh tonnes fish production in FY 2013-14 increasing a significant 106%, PIB GOV, January 2026
[38] Indian Meat Market Size, Share, Trends & Forecast, IMARC
[39] BAHS report, DAHD 2025
[40] Sector profile Meat and Poultry, MoFPI
[41] Indian Meat Market Size, Share, Trends & Forecast, IMARC
[42] Sector profile Meat and Poultry, MoFPI
[43] Marine Products, IBEF, December 2025
[44] Animal Products, APEDA
[45] List of India integrated abattoirs & meat processing plants approved by APEDA, APEDA, May 2026
[46] India's carabeef production, exports to increase in 2024, says USDA's Post, Businessline, March 2024

India's average carabeef export realization of US$ 2.05/kg remains below US$ 6.73/kg (USA), US$ 5.81/kg (Australia), and US$ 4.34/kg (Brazil),[47] reflecting lower processing and value addition. Improving processing standards and export-compliant infrastructure could help access higher-value markets and improve export realization.

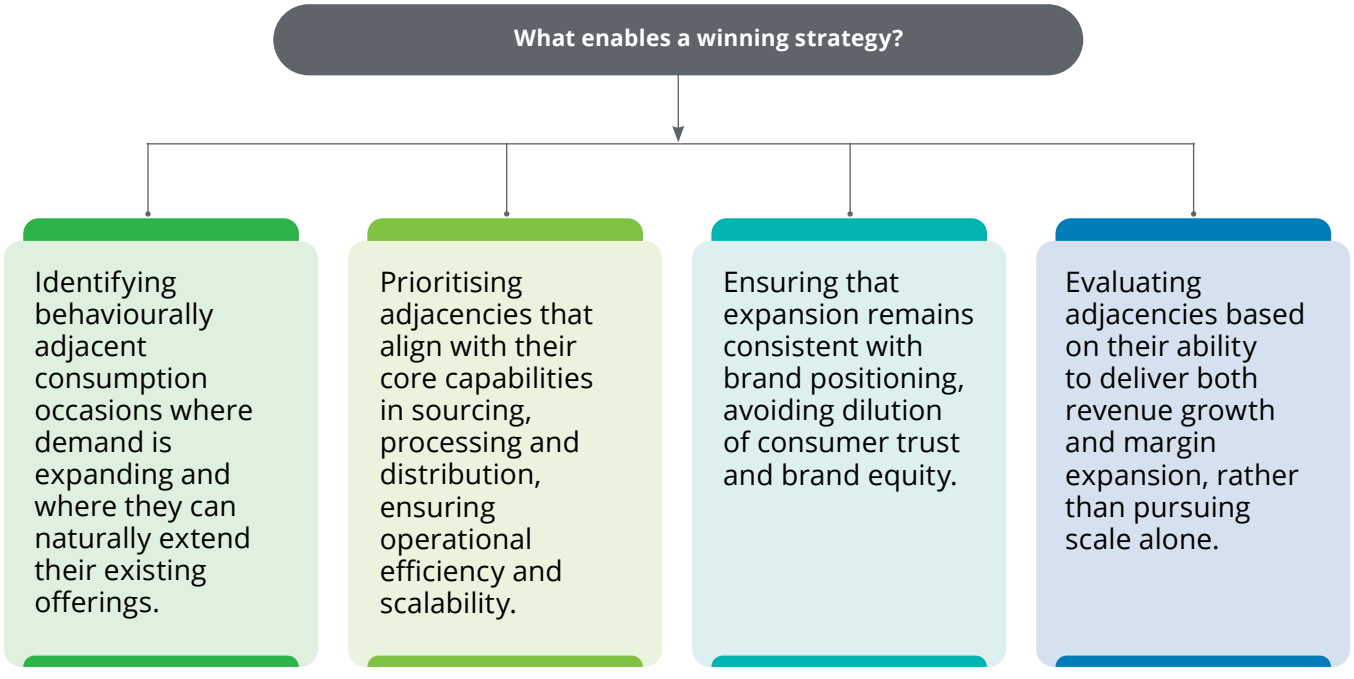
Policy gap and investment opportunity

India has an estimated 8,000 registered and 25,000+ unregistered slaughterhouses,[48] but only 79 APEDA-certified abattoirs-cum-meat processing plants[49] and 5 registered standalone abattoirs.[50] Limited processing capacity, inadequate cold-chain infrastructure and low certification levels continue to constrain value addition and export competitiveness. Following the transfer of the abattoir modernisation scheme to State Governments in 2014[51] and the subsequent withdrawal of central funding support, investment in modern slaughterhouse infrastructure has remained limited. As a result, a large share of meat continues to be processed through fragmented and outdated facilities, creating a significant opportunity for investment in modern, compliant and hygienic processing infrastructure.

This creates opportunities across integrated abattoirs, meat processing, cold-chain logistics, fish processing and export-oriented infrastructure. Investments in certified slaughter, chilling, processing, packaging, Internet of Food (IOF) facilities, filleting units, and cold storage can improve quality, reduce wastage and strengthen export readiness. Egg grading, packaging, and branded cold-chain retail also offer scalable growth opportunities within the broader protein sector.

3.1.2 Innovation through new product development and expansion to adjacencies

An effective strategy is to continuously upgrade and innovate to keep the consumers engaged and invested. This is being supported through new launched supporting either the core categories or entering new adjacent categories that are aligned to current businesses. Companies could chase low-penetrated categories which offer high growth both in terms of revenue and margins. Cross-category expansion tends to succeed when it addresses genuine consumer needs, stays true to the brand's core proposition and builds on its existing distribution strengths. As category boundaries continue to fade, the brands that bridge them with clear intent are the ones creating outsized impact.



[47] India's carabeef production, exports to increase in 2024, says USDA's Post, Businessline, March 2024
[48] Current Status of Slaughterhouses in India, Research Gate, October 2024
[49] Registered Indian Abattoirs cum Meat Processing Plants, APEDA, May 2026
[50] Registered Indian Stand Alone Abattoirs, APEDA, May 2026
[51] Modernization of Abattoirs, PIB, March 2016

Product development philosophy is guided by a 'Ctrl+Alt+Delete' model, substituting, reformulating or replacing ingredients to deliver healthier products without sacrificing taste. The approach is guided by marginal improvement in product with zero compromise on taste. New product contribution to revenue (based on 24-month rolling window) of 4–5 percent[52] is considered a strong benchmark for the sector. These are essential to test online first. About 60–70 percent of new products are launched on e-com/QC before entering GT or MT. This dramatically reduces NPD launch cost compared to the traditional route (MT listing and traditional ATL and media spends). GT entry is prioritised over MT after online validation, as MT demands upfront listing fees and promotional commitments. In GT, if a product is available and consumers ask for it (having encountered it online), retailers will stock it.

- **Avoid both extremes:** 'Fewer, bigger, better'- one launch per year risks missing opportunities; as compared to 'throw it at the wall (high launch volume) which wastes resources and confuses the consumer.
- **The right cadence:** Every brand of meaningful scale should be working on one strong, platform-level innovation every two years, a genuine step-up in product delivery, nutritional benefit or consumer experience.
- **Beyond innovation:** Continuous renovation of the core portfolio is equally important - particularly in categories such as cereals where nutritional profile improvement is expected by consumers.

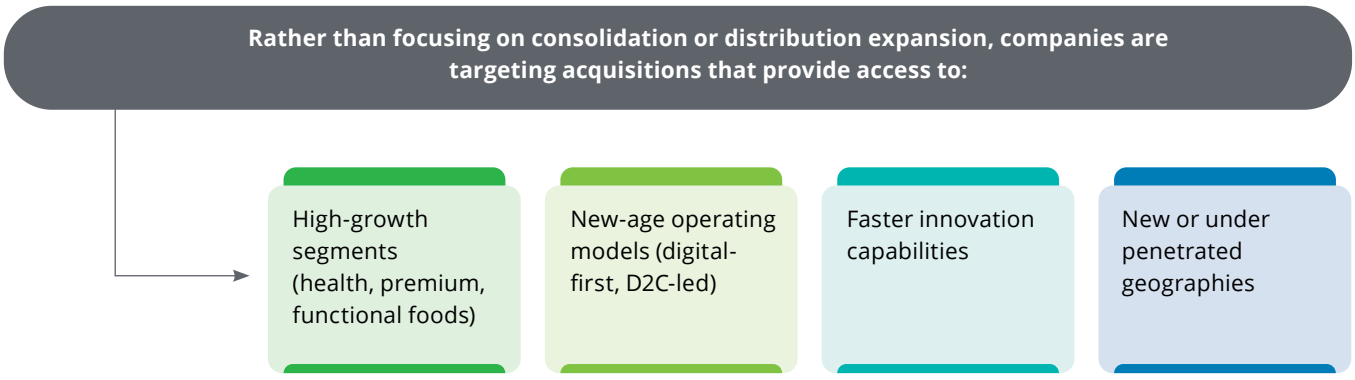
Case in point

- An online fresh meat company announced its foray into the alternative protein sector with the launch of a plant-based meat brand. This launch aligns with the company's strategy of portfolio diversification leveraging its strong core brand equity.
- A consumer product company has launched a new pet food brand, entering India's growing pet-care market. This serves as a key example of entering adjacencies by building on the core strengths.

3.1.3 Accelerating capabilities and product extension through M&As

M&A is increasingly being deployed not as a scale lever, but as a capability accelerator. The shift in deal rationale is evident. Strategic M&A enables companies to rapidly expand their health-focused portfolios and emerging launches, while reducing time-to-market and execution risk.

This reflects the reality that many emerging categories require capabilities structurally different from those of legacy food businesses, including agile product development, digital marketing and direct consumer engagement. Industry data suggests that a growing proportion of deals are now focused on niche, high-growth brands, particularly in premium and health segments. However, the value of these businesses often lies in their agility and differentiated positioning, which can be eroded through traditional integration approaches. 'Buy and build' is preferable to organic build, which takes too long in competitive categories. Assets with tangible value (unique technology, consumer proposition, team capability) remain attractive

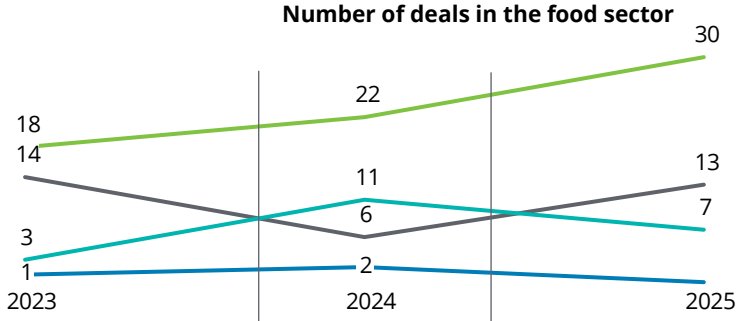


[52] Industry expert interviews, Deloitte analysis

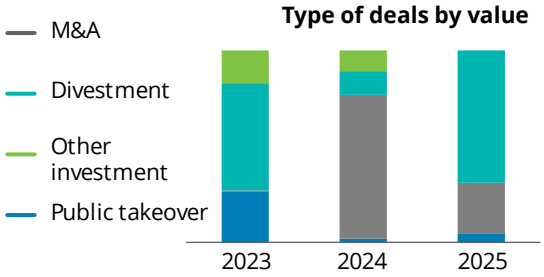


M&A trends in the last three years[53,54]

Number of deals in the food sector



Type of deals by value



A rebound year powered by minority/ other investments (18 deals) and steady acquisition appetite (14 deals), showing renewed confidence in consumer brands and high growth activity.

Marked by a surge in divestments (11 deals worth USD2.16bn), a clear corporate shift toward portfolio rationalisation, carve-outs and exits, far higher than any other year

Dealmaking peaks at 50 deals, driven by 30 other-investment deals, indicating robust capital deployment into scaling categories (snacks, dairy, beverages, nutrition) and strong investor conviction

The market shows a clear strategic shift toward backing high-growth D2C and emerging consumer brands, while large FMCG players simultaneously sharpened their portfolios through major divestments. By 2025, capital was being deployed at scale into categories with strong synergy potential, such as snacking, beverages, dairy and nutrition, indicating a coordinated push toward scalable, brand-led and synergy-rich growth plays.

Case in point

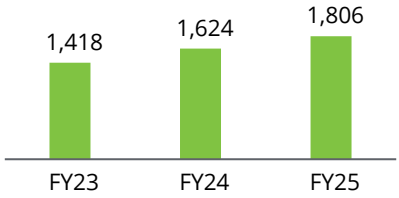
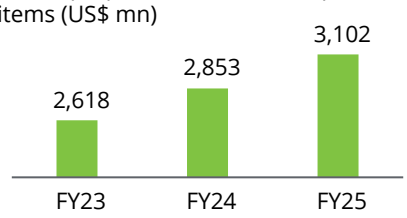
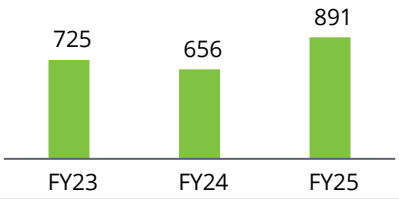
- A consumer product company has made an acquisition, snapping up a 60 percent stake in Indian protein-products business to expand its presence in premium food and nutrition categories
- A consumer product company acquired a Chinese flavour packaged food brand to target addressable market in fast growing/high-margin categories

3.1.4 Export-led growth with a shift from commodity to branded value

Exports represent a structurally under-penetrated but high-potential growth pathway. India's exports of processed food were US$7,886.6 million in 2024–25,[55] yet remain skewed towards semi-processed and commodity-linked products. Hence, an opportunity to foray into more value-added product export can act as a growth lever.

[53] Mergermarket database
[54] Company press releases
[55] Processed foods export data, APEDA

A view on processed food exports: Where does the opportunity lie?[55]

	Key categories	CAGR (FY23-25)	
Processed fruits and vegetables (US$ mn) 	Processed vegetables Processed fruits and juices	24% 6%	Global demand is tilting toward meal-ready, convenience-led vegetable formats, making frozen and ready-to-cook the real growth engine
Cereal preparations and other processed items (US$ mn) 	Cocoa products Cereal preparations Milled products	38% 11% -9%	Value is rapidly shifting from bulk staples to indulgent and ingredient-led categories, signalling that premiumisation, not volume, is the path to export growth.
Meat, dairy and poultry (US$ mn) 	Poultry products Dairy products Processed meat	12% 11% -8%	Exports are being pulled by protein demand and nutrition trends, with growth concentrated in value-added, compliant dairy and poultry formats over commoditised meat

Fastest growing | Stable | Declining

Opportunities for growth

A. Scaling diaspora-led demand through convenience and ethnic packaged foods

Indian food brands have historically built export presence by catering to the Indian diaspora through ethnic staples, snacks, frozen foods and RTE formats that replicate familiar tastes and meal experiences. While this opportunity is relatively niche in the context of global food markets, it remains structurally attractive due to rising migration, increasing demand for convenience-led ethnic consumption and strong emotional affinity towards Indian cuisine. The opportunity is particularly strong in markets such as the US, Canada, UK, Australia, the Middle East, where Indian-origin populations are large and increasingly consuming packaged and convenience-led versions of traditional foods.

B. Taking Indian-origin foods global

Beyond diaspora demand, a larger export opportunity lies in positioning Indian-origin products and categories for mainstream global consumption. India already possesses strong global associations in categories such as tea, spices, basmati rice, ayurvedic ingredients and certain regional flavours, providing a natural brand and provenance advantage in international markets.

Rather than only exporting "Indian food for Indians abroad," the opportunity is to globalise categories where India already has authenticity, sourcing strength and heritage credibility. Similar to how Japan scaled sushi and matcha globally or Korea scaled ramen and kimchi, India can scale products rooted in its culinary identity into mainstream global consumption.

C. Taking Indian brands global while adapting to local tastes

Another pathway lies in taking established Indian brands into international markets while adapting products, flavours, formats and communication to local consumer preferences. In this model, the brand travels globally, but the portfolio becomes market specific.

This allows Indian companies to use existing manufacturing scale, sourcing advantages and brand capabilities while expanding addressable demand beyond the diaspora. True globalisation requires treating international markets as distinct operating markets - investing in on-ground presence, understanding local palates and customising both product and proposition

D. Positioning India as a global food manufacturing and export hub

India also has the opportunity to emerge as a large-scale manufacturing and export base for global food companies, leveraging its cost competitiveness, agricultural base, processing capabilities and improving manufacturing ecosystem. In this model, India becomes part of the global food supply chain rather than only exporting Indian-branded products. As global companies diversify sourcing and manufacturing footprints, India can position itself as a strategic production hub for packaged foods, ingredients, frozen foods and private-label manufacturing for international markets.

E. Turning ingredients into value-added products

Growing cereal preparations signals that global demand is shifting toward value added consumption. Indian companies can leverage this trend by building portfolios around millets, protein blends, fortified flours and breakfast formats, aligning with global demand for nutrition and wellness. For instance, the Middle East imports most of its food staples (rice, dal, flour) from India, yet value-added processed foods come largely from Europe. Indian companies have not capitalised on this gap.

Taken together, these trends indicate that future export growth will be driven not by traditional staples, but by processed, branded and differentiated food categories.

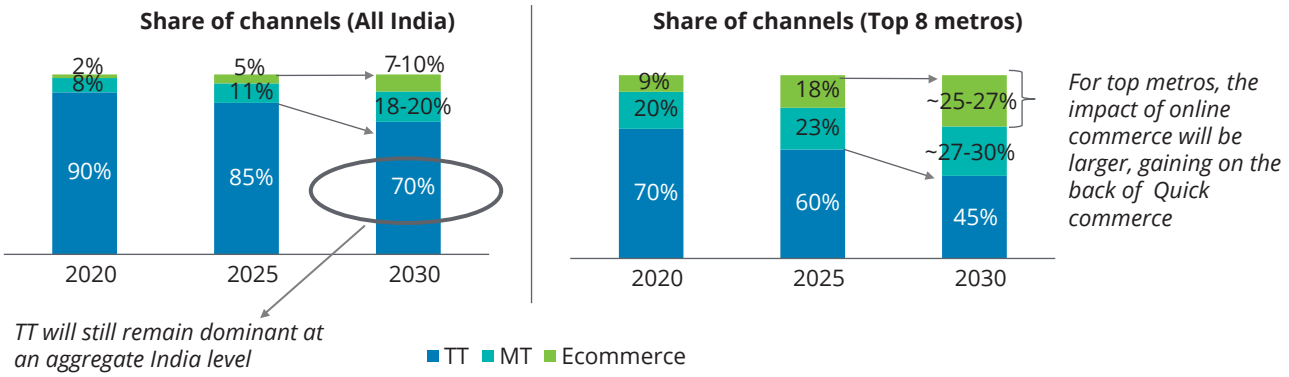
Case in point

- A homegrown food brand has built a strong global presence across snacks and ready-to-eat products, exporting to multiple international markets including the US, UK and the Middle East, supported by its focus on 'ethnicity' and 'culture'.
- A consumer product company has substantially scaled exports of its branded packaged foods portfolio, including biscuits and ready-to-eat meals, by using its sourcing and manufacturing capabilities.

3.2 The evolving channel shifts and changing roles

India's food channel mix is undergoing a structural shift from a predominantly general trade-led system towards a more fragmented and mission-based ecosystem, with modern trade, e-commerce and quick commerce steadily gaining share in packaged food consumption. However, this transition is unfolding unevenly across geographies. In metros, organised channels already account for a significantly high share of food purchases, driven by greater digital adoption, focus on convenience, premiumisation and faster experimentation with new brands and formats. Quick commerce is reshaping urban consumption by driving impulse purchases, higher frequency and demand for ready-to-consume categories. In contrast, beyond metros, consumption continues to remain heavily anchored in *Kiranas*/general trade due to stronger trust networks, proximity and value-focused purchasing behaviour. As a result, India is increasingly evolving into a differentiated channel market, where channel roles, not just channel shares, vary materially by geography, consumption occasion and consumer mission

How channel split is changing[56]



[56] Industry expert interviews, NielsenIQ quarterly data, Deloitte analysis

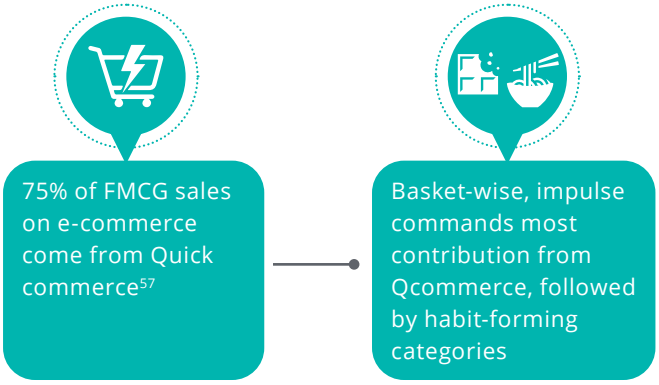


A critical lever lies in how companies design and manage their channel strategies. While traditional trade continues to dominate in scale, accounting for the majority of food retail, modern trade, e-commerce and quick commerce are growing significantly faster and shaping consumption behaviour disproportionately. For packaged food companies, the evolution of channels is no longer a question of reach, it is a question of how demand is shaped, captured and monetised across consumption contexts. From a strategic standpoint, this necessitates a shift towards channel-specific portfolio design.

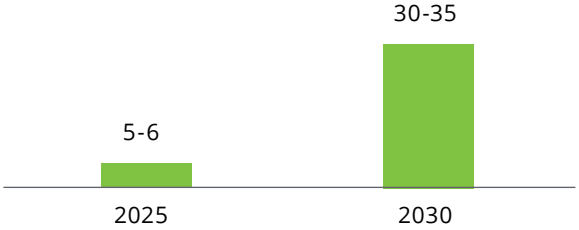
3.2.1 Quick commerce: Route to premiumisation and a launchpad for new products

Quick commerce is no longer just about rapid fulfilment; it is fundamentally reshaping the demand economics for food companies. By reducing the time between intent and purchase, it is increasing purchase frequency and lowering the threshold for consumption occasions.

Food retail through quick commerce is poised for significant growth, reaching a US$30-35 billion in retail value by 2030.[58] Categories that are impulse-driven are disproportionately benefiting, as reduced friction increases trial and repeat purchase. Additionally, pack formats are evolving toward smaller, single-use, or immediate consumption SKUs, optimised for quick replenishment cycles. As a result, visibility within quick commerce platforms, through search rankings, recommendations and placement has become a critical driver of sales, shifting part of the competitive dynamic from shelf space to algorithmic visibility. Specific categories focused on health and convenience are specifically driving growth and discoverability through quick commerce where new D2C brands are also able to gain visibility and drive sales. From a profitability standpoint, quick commerce is the least profitable channel for manufacturers, owing to high search/visibility marketing spends and trade promotion requirements. It is, however, the preferred channel for premium product launches. Quick commerce provides a near real-time feedback loop for new launches: ratings, velocity and sell-through are now visible within days versus the 3–6-month lag in traditional general trade.



Packaged food retail via quick commerce (US$ bn)[36]

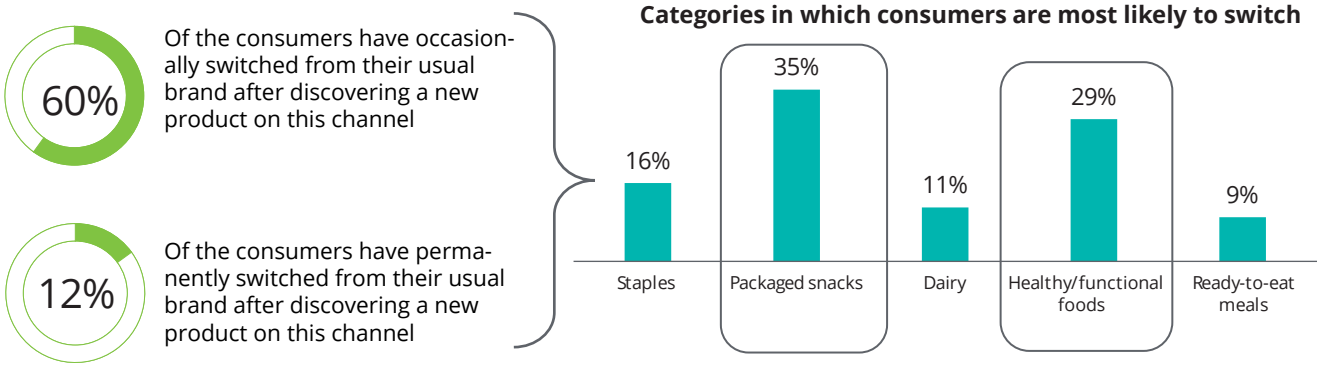


[57] NielsenIQ FMCG quarterly snapshot, OND 2025

[58] Industry reports, Deloitte analysis

Additionally, quick commerce creates a new consumer occasion which is impulse-driven, convenience-led, premium-focused and is structurally different from the weekly Kirana replenishment run. Average order values have grown from INR250 to INR500 in the early years, to almost ~INR650 in 2025.[59] The consumer ordering at last minute is not price-comparing; they are solving a problem. Brands that understand this are designing quick commerce portfolios accordingly, with channel-exclusive SKUs, premium bundled formats, limited launches that create urgency and capturing the premium that those occasions justify.

Consumers switching to a brand after discovering it on Q-commerce[60]



Consumers show higher switch behaviour in high trial categories, including snacking and impulse, alongside emerging categories focussed on health and wellness. This creates an opportunity for more experimentation and NPDs in such categories, offering a clear value add

The above analysis suggests that quick commerce presents a significant opportunity for new players to gain market share, while also pushing legacy players to innovate continuously.

3.2.2 E-commerce for wider scale and assortment, driving on pack sizes and deals

Unlike quick commerce, which is largely driven by immediacy and top-up consumption, e-commerce is emerging as a discovery- and assortment-led channel that enables consumers to access wider product choices, niche categories and premium offerings from the convenience of home. E-commerce is increasingly emerging as a strategic growth lever for food companies by enabling wider assortment visibility, targeted consumer engagement and faster scaling of niche and premium categories. Unlike traditional channels, e-commerce provides consumers access to significantly broader assortments from the convenience of their homes, making it particularly effective for emerging segments such as health foods, gourmet offerings, international cuisines, premium snacks and specialised dietary products that may have limited availability in offline retail.

The channel also provides companies with richer consumer insights, direct feedback loops and the ability to test innovations and optimise assortments more rapidly. In addition, digital search, recommendations and influencer-led discovery are increasingly shaping food purchase decisions online, allowing brands to build visibility without relying solely on physical distribution scale. Trust-deficit categories are also ideal for branded e-com launches.

3.2.3 Modern trade for experience

After a period of stagnation driven by quick commerce disruption, modern trade is expected to return to growth. The 'discovery and experience' value proposition of physical retail, especially at the premium end, is regaining relevance.

Modern trade is increasingly emerging as a strategic channel for premiumisation, category discovery and basket expansion within the food sector. Unlike traditional trade, modern trade enables higher assortment visibility, organised merchandising, in-store discovery and premium shelf placement, making it particularly effective for scaling emerging categories,

[59] Industry expert interviews, Deloitte analysis
[60] Insights from Deloitte consumer survey 2026

premium products, global flavours and health-oriented offerings. The channel also supports larger pack formats, cross-category purchases and impulse-driven premium consumption, helping companies improve both value realisation and brand visibility.

For food companies, modern trade is therefore becoming less about reach and more about influencing consumer perception, driving premium mix and accelerating trial of newer formats. Additionally, modern trade players are increasingly going omnichannel, partnering with quick commerce and ecommerce players, or even building their own arms.

3.3.4 General trade for Bharat's trust and metro's fulfilment

GT has experienced meaningful store closures and channel share loss in the past 2–3 years. According to the All India Consumer Products Distributors Federation (AICPDF), about 200,000 kirana stores were shut in 2024. Of these closures, 45 percent were in metro cities, 30 percent in tier-1 cities and 25 percent in tier-2/3 cities. However, structural response from retailers including differentiated SKU and pack formats for GT is ongoing. Its relevance is evolving from a mere distribution backbone to a more segmented, strategically differentiated channel. In metros, GT is increasingly functioning as a proximity- and immediacy-led channel, catering to top-up purchases, convenience missions and high-frequency consumption needs. Many food companies are also thinking of using urban GT outlets as micro-distribution points. Beyond metros, GT continues to play a far more central role in driving category access, trust and market penetration. In Tier 2+ markets, Kirana stores remain deeply embedded in local consumption ecosystems due to their strong community relationships, assisted selling, flexible credit structures and ability to tailor their assortments to regional demand patterns. For food companies, GT therefore remains critical not only for scale, but also for market development and premiumisation beyond large cities.

3.3 Marketing and branding: From awareness to algorithm-driven value creation

As consumers become more informed and selective, the role of marketing is shifting from broad-based awareness creation to precision-led conversion. Consumers' decision-making is becoming more analytical, requiring brands to provide clear and credible value propositions. At the same time, discovery is increasingly digital, while purchase is fragmented across channels. This creates a non-linear consumer journey where influence, evaluation and conversion occur across different touchpoints. In this context, marketing effectiveness is increasingly dependent on the ability to leverage data and technology to personalise engagement.

India's FMCG sector spent approximately ~INR36,000 crore on advertising in 2025.[61] It is the country's largest advertising category, accounting for nearly one-third of total ad market spend. However, only few brands are generating exceptional returns from their marketing investment. Those are the ones which have resolved the difference between spending on marketing and investing in brand equity.

The digital space is where brands are now built

On an average, people spend 7.4 hours a day on screens, with 2.6 hours just on social media.[62] The primary media environment for India's most commercially valuable consumer cohort is the phone screen and specifically the social feed. This does not make television irrelevant, mass reach at scale remains valuable for certain categories. But it means that a brand's digital presence is no longer supplementary to its brand identity. For a growing majority of consumers, It is its brand identity.

The creative grammar of digital is fundamentally different from broadcast. It demands authenticity over production value and consistency over intermittent campaign bursts.[63]

Over 68 percent of Indian social media users discover new brands on those platforms and **more than 54 percent** have purchased a product directly after seeing it on a social media platform.[63]

Since discovery, consideration and conversion are now happening in the same environment, brand communication infrastructure must serve all three simultaneously, not as separate campaign briefs.

[61] dentsu-e4m Digital Advertising Report 2026

[62] Indian families struggle to cope with excessive screentime usage, MIG, October 2025

[63] 9 in 10 aware of quick commerce, 68% discover products via social media; Reveals Meta, financial express, November 2024

Retail media networks are also witnessing rapid expansion.[64] These networks are delivering materially stronger outcomes compared to traditional digital advertising

This momentum is further supported by the rise of shoppable advertising formats across connected TV and streaming platforms, which are increasingly moving into the mainstream.

Influencer marketing as a hook to digital presence

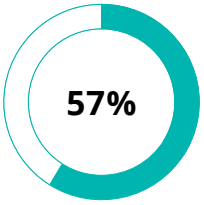
India's influencer marketing industry is now estimated at INR3,000–INR3,500 crore and growing.[65] Sector-wise, E-commerce alone accounts for 23 percent of the sector's annual spends, followed by FMCG at 19 percent. Critically, 63 percent of Indian consumers turn to influencers for product discovery, 69 percent for product information and 60 percent for purchasing decisions. No other single media vehicle matches this funnel penetration.[66] But the ROI from influencer investment is wildly asymmetric, and the gap is growing between companies that have built a coherent influencer architecture and those that are running one-off celebrity endorsements. Nano-influencers have an average engagement rate of 2.53 percent, compared to just 0.92 percent for mega-influencers.[67] More importantly, influencers in private communities are delivering much higher ROI of public feed campaigns because trust density is dramatically higher. The recommendation from a creator whose opinion you value, in a space you trust, is categorically different from a sponsored post in a crowded feed.

The strategic implication is to move from reach-based influencer buying to trust network construction. This means long-term partnerships over one-off campaigns (58 percent of FMCG brands are already moving in this direction), regional and vernacular creator relationships that reach the tier II and III consumer where the next decade of growth actually lives and a shift in success metrics from impressions to purchase intent, repeat purchase and advocacy. India's creator economy is expected to expand significantly, driven by tier II and III growth, vernacular consumption and commerce-linked activity. The brands building relationships in this ecosystem now will have structural advantages in consumer trust that are not purchasable later.

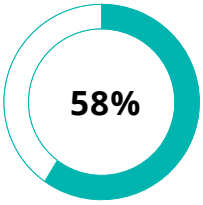
1.8x higher effectiveness and significantly stronger impact on purchase intent through RMNs.[64]

1/3rd of marketers planning to increase investments in retail media by 2026.[64]

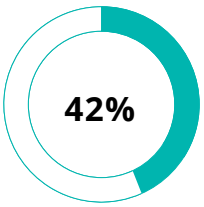
Key reasons why FMCG brands are investing in creators[66]



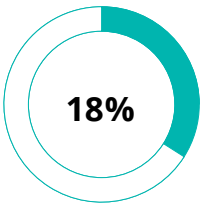
Enhanced trust and credibility through influencers



Increased brand awareness and reach



Demonstrated ROI and measurable success



Growth in influencer-driven sales or conversion

The importance of the creator economy continues to scale; however, brands must strike the right balance between creative freedom and strategic direction. Success will depend on the ability to seamlessly integrate brand narratives within creator-led content, avoiding both excessive control that dilutes authenticity and insufficient guidance that weakens brand linkage.

Personalisation: Leveraging consumer intelligence

In food and wellness, where individual preferences, health goals and dietary restrictions are deeply personal, the distance between generic communication and relevant personalisation is felt acutely by consumers. Hence, sending the same promotion to

[64] The FMCG marketing trends to watch in India in 2026, Social Samosa, January 2026

[65] Influencer marketing report, Kofluence, 2025

[66] India influencer marketing report, Kantar and WPP, 2025

[67] Statistics sourced from Influencer Marketing Hub

their entire Customer Relationship Management (CRM) database, launching products without testing them against their most loyal consumer segment first is not viable anymore. Companies have started to utilise data more closely to build personalised strategies. The infrastructure for personalisation is now being built through D2C channels, loyalty programmes and quick commerce data partnerships. The companies that move fast here will find the returns compound. Better personalisation improves conversion, which improves the data pool which in turn enables better personalisation.

Additionally, AI-driven personalisation is emerging as a critical capability. By analysing consumer behaviour, purchase history and preferences, companies can:

- Deliver targeted product recommendations
- Optimise pricing and promotions dynamically
- Personalise content and communication

GenAI moves beyond simple recommendations, creating uniquely tailored experiences for diverse audiences and driving significant customer loyalty.[68]



4–6% increase in revenues for compaines due to personalised marketing campaigns

Insights indicate that 74 percent of regular AI assistant users actively seek AI-driven recommendations, underscoring the growing role of AI in shaping discovery.[69] However, the effectiveness of these tools ultimately depends on their ability to enhance human decision-making rather than replace it. For FMCG brands, this translates into using AI and digital capabilities to create relevant, high-impact consumer moments.

At the same time, adoption of AI in commerce is accelerating, with consumers already engaging with AI-powered shopping assistants. This signals a structural shift, where purchase decisions are increasingly influenced by AI agents. For CMOs, this expands the competitive landscape. Brands must now be optimised not only for human consumers but also for algorithms. This requires building structured, machine-readable content ecosystems that enable large language models and recommendation engines to accurately interpret, surface and recommend their products.

In India, this is particularly relevant given the diversity of consumption patterns across regions, income segments and channels. AI enables companies to move from a 'one-size-fits-all' approach to micro-segmentation and contextual engagement, improving both efficiency and effectiveness of marketing spend.

Growth will be won through precision and alignment

The next phase of growth in India's food processing sector will be defined by the ability to align strategy across portfolio, channel and marketing levers.

Portfolio expansion must be anchored in high-value adjacencies and supported by capability building. Channel strategies must reflect distinct roles and economics. Marketing must evolve toward data-driven, personalised engagement that clearly communicates value. The unifying theme across all three levers is the shift from scale to precision. Growth will not be driven by uniform expansion, but by the ability to identify where value resides, align capabilities to capture it and execute with discipline across the value chain. In a market characterised by fragmentation and selective premiumisation, this precision will increasingly determine which companies are able to capture disproportionate value.

[68] Deloitte analysis

[69] Kantar's Marketing Trends 2026 report

Chapter 4: Cost excellence: Structural efficiency to strengthen competitiveness and sustainable margins

4.1. Why operational excellence has become a strategic imperative

The operating environment for the food industry has become increasingly volatile, driven by supply chain disruptions, climate variability and fluctuating input costs.

In late 2025, geopolitical tensions and disruptions along key routes such as the Red Sea and Suez corridor led to longer transit times and higher logistics costs, directly impacting the movement of food commodities and inputs. Around the same time, climate variability in India—including floods, heatwaves and erratic monsoons, affected crop output, raw material availability and domestic logistics.

The risk environment intensified further in early 2026, with disruptions linked to the Strait of Hormuz affecting global supply chains for energy, fertilisers and petrochemicals, which are all critical inputs for food production, processing and distribution.

Collectively, these developments signal to a structural shift. Disruptions are more frequent and less predictable, input cost volatility is embedded in operations and efficiency-led models alone are no longer sufficient to sustain the competitiveness.

In this environment, **the gap between industry leaders and laggards will increasingly be defined by operational excellence** and the ability to sustain cost competitiveness amid rising volatility. Organisations that build resilient operations, strengthen execution discipline, enhance supply chain agility and proactively manage costs will be better positioned to protect margins and sustain growth.

4.2. Major operational challenges across the food industry: Capacity growth vs value realisation

India's food processing sector has witnessed steady expansion in recent years, growing at approximately 5–6 percent[70] annually, with gross value added increasing from **INR1.34 lakh crore in FY15 to INR2.24 lakh crore by FY24.**[70] Processed food exports have also strengthened, now accounting for over 20 PERCENT[70] of agri-food exports compared with ~14 percent[70] a decade earlier, reflecting a gradual shift towards higher-value and more processing-intensive product categories.

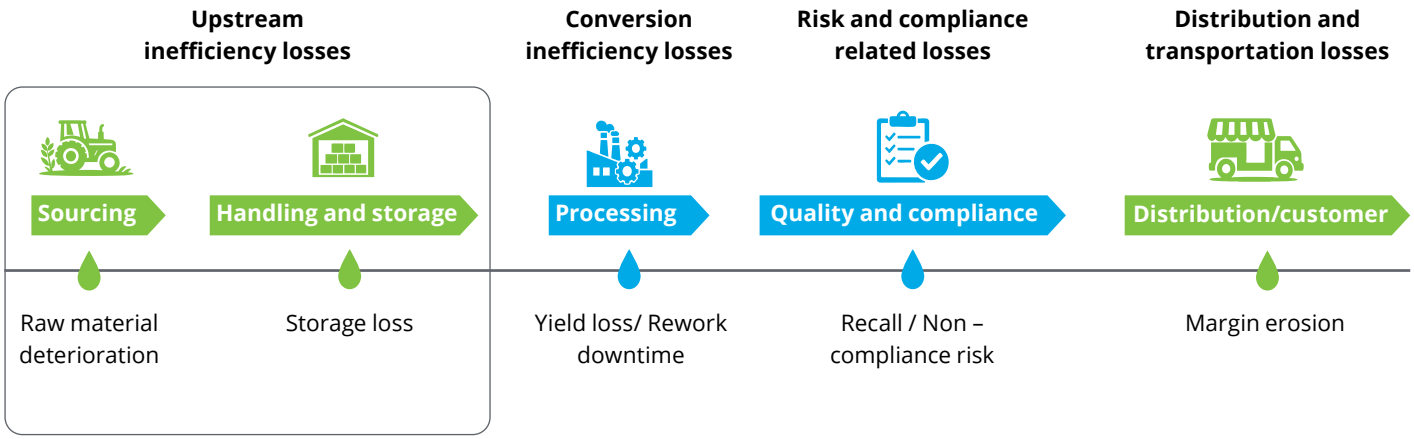
However, the sector's growth trajectory is increasingly being constrained by persistent operational inefficiencies that limit value realisation across the supply chain. As the industry moves towards more perishable, quality-sensitive and compliance-intensive product segments, operational excellence is becoming a critical determinant of profitability, competitiveness and scalability.

At the sourcing stage, **upstream inefficiency losses** across harvesting, handling, storage and transportation continue to drive deterioration and variability in raw material quality even before processing begins, with **losses estimated at ~5–7 percent[71] on average, across major commodities.**

Within processing operations, **conversion inefficiency losses** continue to impact output and margins through yield losses, product rejects, rework and downtime. Industry benchmarks indicate that **manufacturers lose an average of ~12–15 percent[72] of revenue** due to operational inefficiencies, including delays, quality deviations and underutilised assets.

[70] Strengthening India's Food Processing Ecosystem, PIB, April 2026
[71] SCHEMES TO MINIMISE POST-HARVEST LOSSES, PIB, July 2025

Where value leaks across the food value chain?



In parallel, **risk and compliance-related losses** are emerging as a significant commercial and reputational challenge for the industry. Quality deviations, product recalls and non-compliance with food safety standards can result in substantial operational disruption and financial loss. In India, product recalls can lead to **losses ranging from INR5–50[73] crore for mid-sized processors,** driven by product withdrawals and regulatory actions, while global benchmarks estimate the average direct cost of a **food recall at over USD 10 million,**[74] excluding long-term brand and revenue impact.

These inefficiencies not only impact revenue but also inflate cost structures through higher rework, excess inventory and underutilised assets, directly eroding operating margins.

4.3. Capabilities shaping the future of operational excellence

Operational excellence in the food industry is increasingly being shaped by the following three capabilities, with digital technologies serving as a foundational enabler across each of them. As manufacturing environments become more complex, quality-sensitive and demand-driven, these capabilities are expected to play a defining role in determining operational resilience, scalability and long-term competitiveness.

4.3.1 Connected and intelligent operations

Connected and intelligent operations are becoming a critical foundation for operational excellence, enabling greater execution reliability, real-time visibility, process consistency and scalability across manufacturing environments.

In labour-intensive sectors such as food manufacturing, where margins remain thin and quality, traceability and downtime risks are high, technology adoption is increasingly emerging as a key indicator of operational maturity and competitiveness.

Leading organisations are moving beyond standalone automation initiatives towards integrated operational ecosystems that combine:

- **Advanced automation** (robotics, process automation)
- **Connected operations** (IoT-enabled equipment and sensor networks)
- **Data-driven intelligence** (predictive and prescriptive analytics)

This integrated approach is enabling organisations to transition from reactive operations toward more agile, data-driven and resilient manufacturing systems. Increasingly, the ability to operationalise these capabilities at scale is emerging as a key differentiator between organisations driving sustained operational performance and those constrained by rising operational complexity.

[72] CPG Manufacturers Face Rising Production Losses, Look to Industrial AI To Close the Gap, PROFOODWORLD, April 2026
[73] Product Recall Claims in India: Trigger Mechanisms, Cost Categories, and Insurer Expectations, Sarvada.ai, Feb 2026
[74] Recall: The Food Industry's Biggest Threat to Profitability, Food Safety Magazine
[75] India Rises to Sixth in Global Factory Robot Installations, IFR, Sep 2025

Current state: Industry 4.0 is seeing rapid adoption, however, opportunity to scale remains less

Despite growing strategic importance, automation and digital integration in India's food processing sector remain **structurally underpenetrated** relative to other manufacturing industries.

Industrial robot adoption continues to be **concentrated in sectors such as automotive and electronics,** while other industries **including food processing account for a comparatively smaller share of deployment.**[75]

While pockets of automation adoption exist, **end-to-end digital integration remains limited,** particularly in small and mid-sized operations. Continuous equipment monitoring, real-time performance tracking and predictive maintenance capabilities are not widely embedded, resulting in:

- Limited visibility into plant performance
- Reactive maintenance approaches
- Underutilisation of installed automation assets

As operational complexity and compliance requirements continue to increase, the challenge for the food industry is no longer awareness of Industry 4.0, but the ability to scale and integrate these capabilities across the manufacturing value chain in a commercially sustainable manner.

Emerging industry trends:

The food industry is witnessing a steady increase in automation-led investments, driven by the need to modernise operations, address labour constraints and manage increasingly complex production environments.

Robot adoption in the sector grew by approximately **21 percent in 2024,**[76] reflecting accelerating momentum in automation deployment across food manufacturing operations.

Investments are primarily concentrated in **end-of-line operations such as packaging and palletising,** alongside **material handling and processing applications.** Additionally, there is a growing focus on **collaborative robots,** given their flexibility and suitability for deployment in dynamic production settings.

Over time, organisations that successfully embed connected and intelligent operations into core manufacturing processes are likely to be better positioned to improve responsiveness, reduce operational variability and sustain competitiveness in an increasingly demanding operating environment.

4.3.2 Asset reliability and maintenance excellence

Asset reliability is increasingly emerging as a strategic determinant of operational resilience in the food industry, with direct implications for productivity, service continuity, food safety and regulatory compliance.

As manufacturing environments become more automated, interconnected and quality-sensitive, the operational and financial consequences of reliability failures are becoming significantly more pronounced across the value chain.

Globally, unplanned downtime is estimated to result in losses of approximately **US$1.4 trillion annually**[77] for large manufacturers, with equipment failures accounting for a majority of incidents.

High cost of reliability failures

In India, reliability-related disruptions continue to occur at significantly higher frequency and cost compared with global benchmarks:

- **88 percent**[78] **of Indian manufacturing businesses experience unplanned outages at least once a month,** compared with 69 percent[78] globally.
- **The cost of unplanned downtime in India is estimated at approximately INR7 million per hour,**[78] driven by lost production, spoilage, emergency repairs and compliance-related penalties.

Operational impact across food manufacturing

Operational evidence from food manufacturing facilities further highlights the scale of the challenge:

- Unplanned equipment failures **can result in ~48 hours**[79] of downtime per incident, translating into **direct losses of approximately INR8–15 lakh**[79]
- Reliability interventions such as vibration monitoring of critical motors have demonstrated the **ability to avert losses of ~INR20 lakh per event,**[79] while enabling planned maintenance over reactive shutdowns

[75] India Rises to Sixth in Global Factory Robot Installations, IFR, Sep 2025

[76] Automation adoption surges with food & beverage manufacturers, Beverage Industry, Dec 2025

[77] The True Cost of Downtime, SIEMENS, 2024

[78] ABB survey reveals unplanned downtime costs INR 7 million per hour, ABB, Nov 2023

[79] Motor Bearing Vibration in Food Plants: Predictive Maintenance Guide, Synchronics Blog ,March 2026

These trends indicate that asset reliability can no longer be approached purely as a maintenance function, particularly in high-sensitivity food operations where downtime directly impacts yield, quality consistency and food safety outcomes. Increasingly, reliability maturity is becoming a key differentiator between organisations capable of sustaining operational stability and those exposed to recurring disruptions, quality losses and escalating operating costs.

Addressing this challenge requires a structural shift from reactive maintenance practices toward predictive and condition-based maintenance models enabled through IoT-based monitoring, vibration analytics and digital maintenance platforms such as Computerised Maintenance Management System (CMMS) and Asset performance management (APM) systems.

Combined with critical asset prioritisation and data-driven maintenance scheduling, these capabilities enable early fault detection, minimise unplanned shutdowns and reduce production losses and spoilage risks.

Recent deployments across the food sector demonstrate clear operational upside from predictive maintenance adoption:

- Original Equipment Manufacturers (OEMs) and technology providers active in India's food sector report **around 30 percent[80] reduction in unplanned downtime and yield improvement by 1–2 percent[80]** among customers adopting predictive analytics and condition monitoring solutions across milling, grain handling and packaging operations.
- Food industry specific case evidence, including Indian and emerging market deployments, demonstrates **up to 40 percent[81] reduction in maintenance costs** in mid scale processing plants transitioning from breakdown led maintenance to predictive approaches.

As food manufacturing environments become increasingly automated and uptime-sensitive, predictive maintenance and reliability-led operations are expected to evolve from operational improvement initiatives into core competitive capabilities.

4.3.3 Workforce upskilling

A future-ready workforce is rapidly becoming the defining differentiator between food processing organisations that will scale competitively and those that risk operational stagnation. As organisations accelerate digital adoption, workforce capability is shifting from a support function to a core strategic lever for productivity, quality, resilience and growth.

Employment in registered food processing units is projected to increase from **14.6 lakh in 2020** to nearly **28 lakh by 2030,**[82] while the broader food industry workforce is also expected to nearly double over the same period. However, the industry is not merely facing a workforce expansion challenge, it is confronting the trials of workforce transformation.

This transition is expected to create significant demand for new-age roles across Industry 4.0, advanced quality systems, digital operations, food fortification, smart packaging, food analytics and NPD. Yet, India's current talent ecosystem remains underprepared to supply these capabilities at scale.

Recognising this growing demand–supply gap, the Government of India has launched several targeted initiatives aimed at strengthening skill development across the food processing sector. Initiatives such as **Pradhan Mantri Formalisation of Micro Food Processing Enterprises (PMFME and Pradhan Mantri Kisan Sampada Yojana (PMKSY),** along with collaboration with **Food Industry Capacity & Skill Initiative (FICSI),** are focused on standardising job roles, expanding access to structured training and promoting entrepreneurship across the food value chain. However, the scale and pace of industry transformation will require significantly deeper industry-academia collaboration.

4.3.4 Strategic priorities to build a future-ready workforce

1. **Continuous upskilling and reskilling**
    - Conduct periodic skill-gap assessments using operational performance data, workforce surveys and manager feedback
    - Develop personalised learning pathways focused on emerging capabilities such as such as data analytics, Industrial Internet of Things (IIoT), AI-enabled operations and digital manufacturing systems
    - Strengthen collaboration with academic institutions, industry bodies and digital learning providers to accelerate workforce readiness
    - Use GenAI-enabled learning assistants and intelligent knowledge platforms to provide

[80] Predictive maintenance has helped our customers cut downtime by 30%, TECHCIRCLE, July 2025

[81] Predictive Maintenance Case Studies, Tech4LYF, April 2026

[82] Skilling Study One Page Summary, MoFPI,_Sept 23 2022.pdf

[83] Initiatives to Bridge Skills Gap in Food Processing Sector, MoFPI, Dec 2025

real-time guidance, multilingual support and role-based learning recommendations

- Use Augmented reality (AR)/Virtual reality (VR)-based immersive training modules for operator onboarding and machine handling

2. **Scalable training models for Micro, Small and Medium Enterprises (MSMEs)**
   - Leverage cost-effective digital learning platforms and government-led initiatives to improve access to workforce training
   - Enable certification-led capability development through targeted financial support and incentives
   - Adopt modular and flexible learning formats to minimise productivity disruption while scaling skills

Strategic takeaway

The next decade will redefine competitiveness within India's food processing sector. Organisations that continue to treat workforce development as a peripheral HR initiative may struggle to realise the full value of digital transformation investments. In contrast, companies that build digitally capable, adaptable and innovation-oriented workforces will be better positioned to accelerate productivity, scale transformation and sustain long-term competitiveness.

Workforce capability is no longer a support function, it is becoming a strategic source of competitive advantage and a critical enabler of future-ready manufacturing.

4.4 Building the next frontier of operational excellence

Looking ahead, the next phase of operational excellence in the food industry will be shaped by a set of high-impact opportunities centred **on intelligent operations, asset reliability and digital simulation.** These are not standalone initiatives, but interconnected capabilities that together enable more resilient, efficient and scalable operating models.

4.4.1 Driving performance through intelligent operations and asset reliability

A major opportunity lies in improving operational performance through **targeted adoption of automation, IoT and advanced analytics,** particularly in environments characterised by high product variety, frequent changeovers and stringent quality requirements.

Forward-looking organisations are increasingly using these technologies not just to improve efficiency, but to reduce variability, improve uptime and enhance process consistency.

4.4.2 Improving decision-making through digital simulation

A second area of opportunity is the increasing use of **digital simulation and digital twin technologies** to support better planning and decision-making.

In the food industry, digital simulation and digital twin technologies enable companies to **test production changes and operational scenarios before implementation,** helping manage variability, perishability and process complexity while improving planning accuracy and execution reliability.

The following table illustrates the scale of impact firms achieved through targeted deployment of automation, IoT and analytics to enhance operational efficiency and asset reliability. Improvements in Overall Equipment Effectiveness (OEE), throughput and waste reduction translate directly into cost excellence by lowering per-unit fixed costs, reducing material losses and improving asset utilisation.

Area	Reported outcome range	Primary operational domain impacted
Unplanned downtime	20–25 percent reduction[84]	Equipment availability and reliability
Overall equipment effectiveness	10–15 percentage points increase[85]	Line performance and execution discipline
Throughput/output	10–20 percent increase[86]	Bottleneck control and capacity utilisation
Waste/rework	~ 20–25 percent reduction[87]	Yield stability and process consistency
Inspection accuracy	>99 percent reported defect detection[87]	Quality assurance and compliance control

[84] Digital Transformation In The Food Manufacturing Industry Statistics, Worldmetrics, 2026

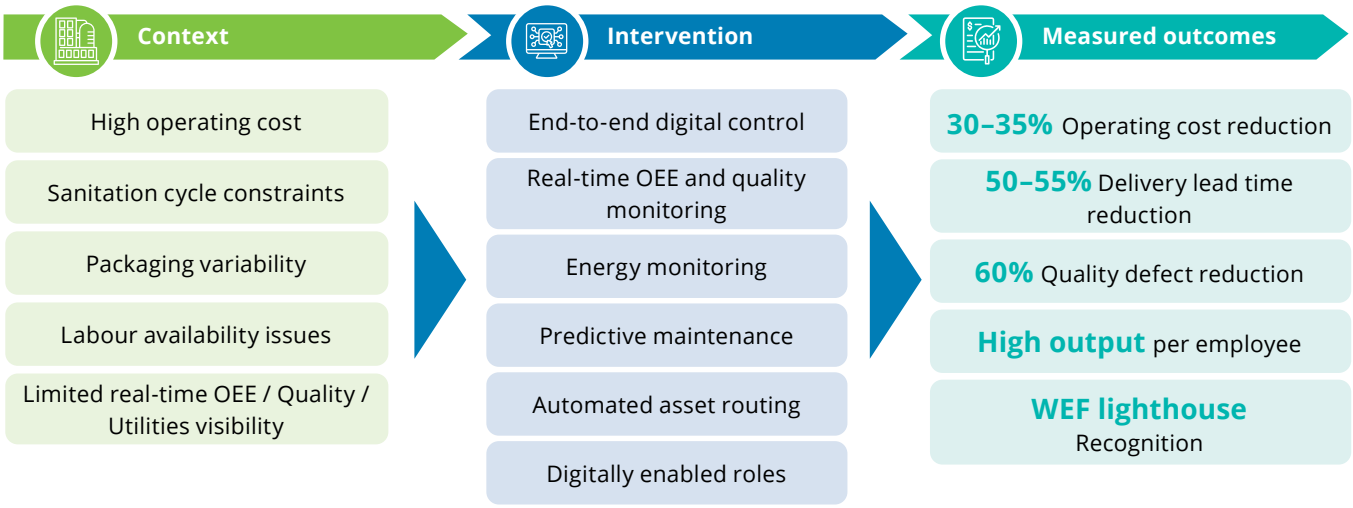
[85] OEE Improvement, mingo Smart Factory

[86] 2025 Smart Manufacturing and Operations Survey: Navigating challenges to implementation, Deloitte, May 2025

[87] Advancing Food Manufacturing Through Digital Transformation, foodengineeringmag, May 2026

4.5. Case studies - 1

Dairy digital factory transformation: From pain points to performance impact



Case Study 2: Accelerating engineering excellence in F&B manufacturing through a digital twin

Context

- Large, geographically dispersed F&B manufacturer with multiple production facilities
- Reliance on Computer-Aided Design (CAD) files, static drawings and in-person site visits for engineering planning
- Challenges included:
  - High travel costs and slow project cycles
  - Fragmented documentation across teams
  - Limited alignment between engineering, operations and health and safety
- Restricted site access during disruptions delayed projects and increased operational risk

Intervention

- Deployed digital twin solution across manufacturing network
- Created high-resolution 3D virtual replicas of plants, equipment and workflows
- Enabled a single, real-time interactive platform for:
  - Engineers, plant teams, safety leaders and external partners
- Key capabilities:
  - Simulate layout changes and equipment upgrades
  - Conduct virtual safety walk-throughs
  - Enable remote collaboration and onboarding
- Reduced reliance on physical site visits and improved cross-functional access

Measured outcomes

- **Faster project execution:**
  - 20–30 percent reduction in design and review cycle times
- **Improved quality of execution:**
  - 15–25 percent reduction in design rework
  - Better first-time-right outcomes
- **Cost efficiencies:**
  - 30–40 percent reduction in engineering and consultant travel
- **Better utilisation of expertise:**
  - Enabled remote collaboration across facilities
  - Faster decision-making and stakeholder alignment

4.6.Way Forward: Enabling operational excellence at scale

India's food processing sector has reached a point where the cost of inaction has become measurably higher than the cost of transformation. The sector's growth trajectory remains compelling, valued at **~INR33,053[88] billion in 2025** and projected to expand at a **CAGR of ~7.5 percent[88] through 2034,** with cumulative **FDI inflows of over US$13.4[89] billion since 2000 to June 2025** reflecting

[88] Indian-food-processing-market, IMARC, 2025
[89] Food Processing, INVEST INDIA

sustained investor confidence. However, beneath this growth story lies a structural challenge: the sector is scaling faster than the operational foundations required to support that scale sustainably.

Post-harvest losses estimated at INR1.53 trillion[90] annually, processed fruits and vegetables penetration below 5 percent,[90] and repeated product rejections in export markets over the past five years are not isolated inefficiencies, they collectively reflect persistent gaps across quality assurance, traceability, infrastructure and operational execution.

At the same time, the pressures demanding change are converging rapidly. Regulatory scrutiny is intensifying through both domestic food safety standards and increasingly stringent export-market requirements. Consumer preferences are also shifting toward higher-quality, traceable and consistently manufactured products. In this environment, competitive advantage will increasingly be defined by operational excellence and the ability to sustain cost competitiveness amid rising volatility.

The organisations and institutions that treat this as a moment for execution, rather than incremental adaptation, are likely to define the next phase of India's food processing growth story.

4.6.1 Strategic priorities for industry

The starting point for large processors is governance, not technology. Many organisations still lack a board-level framework linking plant-level performance metrics such as OEE, reliability and yield directly to profitability and value realisation. Operational excellence must increasingly be elevated from a manufacturing initiative to a core business strategy, supported through dedicated ownership, clear key performance indicators (KPIs) and sustained capital allocation.

Equally important is the sequencing of investments. Organisations must prioritise interventions targeting the highest-cost operational failure points, including predictive reliability for critical assets, real-time yield monitoring for high-value production lines and digital quality assurance across compliance-sensitive operations. The business case is increasingly measurable: predictive maintenance deployments have demonstrated **up to 25 percent[91] reduction in maintenance costs** in mid-scale processing environments, while targeted IoT and analytics adoption has delivered **35–50 percent[92] reductions in unplanned downtime.**

At the same time, workforce capability can no longer remain secondary within transformation programmes. **Only around 3 percent[93]** of India's food processing workforce is formally trained, creating a structural capability gap that could constrain the returns from automation, digitalisation and operational modernisation initiatives.

The imperative is increasingly clear: operational excellence must be governed, resourced and executed with the same discipline as growth and expansion strategies. For an industry expected to scale significantly over the next decade, organisations that build these capabilities early are likely to emerge as long-term industry frontrunners.

4.6.2 Strategic priorities for government

Strengthening digital and physical infrastructure will be critical to reducing systemic inefficiencies across the food value chain. India continues to **incur post-harvest losses estimated at ~INR1.53 trillion annually,[90]** driven largely by gaps in storage, transportation and handling infrastructure. In addition, **less than 10 percent[94] of agricultural produce** currently moves through integrated cold-chain networks, underscoring the need for greater investment in cold-chain infrastructure, traceability systems and digitally enabled supply chains to improve quality, shelf life and value realisation.

Building a future-ready workforce ecosystem will be equally important to sustaining long-term sector growth. Food processing volumes are **projected to grow at ~7.5 percent[95] CAGR,** driving significant demand for skilled talent across automation, processing, maintenance and quality functions. Sector employment is expected to nearly double from **~14.6 lakh in 2020 to ~28 lakh by 2030,[95]** creating a requirement for **~13.4[95] lakh additional skilled workers.** Simultaneously, the emergence of new-age roles across advanced processing, packaging, food testing and digital operations is accelerating the need for more industry-aligned and future-oriented skilling frameworks.

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[90] Mitigation & Adaptation to Climate Change, ClimateChange.Academy, Oct 2025

[91] Predictive Maintenance Cost Savings: The Complete Financial Guide for Industrial Decision-Makers, Vista Projects, Jan 2026

[92] 90+ Manufacturing IoT Statistics (2025-2026): IIoT Market Size, Adoption Rates & Smart Factory ROI, Manufacturing Lead Generation, Mar 2026

[93] Current-trends-indian-food-processing-industry, Agriculture Institute, July 2025

[94] Cold Chain Market in India, Sikkim cold storage

[95] Skilling Study One Page Summary, MoFPI,_Sept 23 2022.pdf

Going forward, enabling operational excellence at scale will require coordinated action across industry, government and ecosystem institutions. As India positions itself as a global food processing hub, the ability to build resilient, technology-enabled and execution-focused operations will increasingly determine the sector's competitiveness, export readiness and long-term value creation potential.

4.7 Sustainability as an embedded operating lever in the food value engine

The food value engine today faces two competing pressures. On the one hand, there is a need to operate efficiently and protect profit margins amid rising uncertainty and fluctuating cost drivers. This is coupled with the expectation that quality, compliance and traceability levels will improve. Such expectations come from organised retailers, Quick Service Restaurant (QSR) outlets export buyers and regulators and are based on increased consumer awareness.

Across the food value engine, sustainability can take on several forms and meanings. At a high level, sustainability is often equated with compliance with food safety and other requirements, as well as certifications. This includes requirements regarding packaging materials, waste management and, for publicly listed companies, requirements under SEBI's Business Responsibility and Sustainability Reporting (BRSR) and BRSR Core framework. However, sustainability means much more than that in practice. It is becoming an operational lever that businesses use to improve efficiency, compliance and future market readiness.

For example, a large food and beverage company discussed several sustainability interventions it has undertaken due to improved operational efficiencies. Renewable energy adoption, reduced water intensity, packaging optimisation and yield improvement are seen as commercially sound initiatives because they either reduce costs, increase efficiency or are neutral from a cost standpoint. Another aspect highlighted was that, despite rising expectations, the willingness to pay a premium for sustainability has yet to become prevalent among consumers in India.

While consumer demand may be an important driver of sustainability efforts, several other factors are also at play. Rising cost pressure from raw materials, energy, water and logistics continues to be relevant for businesses across the board. At the same time, supply chain complexities, climate variability and changes in regulations are making procurement and planning difficult. Among the most pressing issues for businesses are changes in the output of various agricultural products, shortages of edible oils, sugar-based inputs and logistics and fuel costs.

In this context, the key challenge for food businesses is to ensure operational flexibility, diversify procurement regions and have visibility across the entire supply chain. As a result, reliance on forecasts alone may not be enough; agility and adaptability are crucial to success. Furthermore, rising compliance and disclosure requirements across safety, packaging, the environment, energy use and traceability continue to add to the pressure on businesses.

Increasing regulatory pressure comes with an expanded scope and new considerations. Food businesses, in



particular, are facing a rising demand for traceability and sustainability from organised retailers, QSRs exporters and buyers. All these factors combine around a central idea of how resources are managed across the food value engine. Climate-related pressures on the food value engine are intersecting with policy considerations and energy transitions.

Several leading FMCG players expressed concerns about increased ethanol-blending targets and the resulting cost pressures in the sector. Ethanol is produced from agricultural feedstock, primarily sugarcane, creating pressure on procurement costs and pricing. This, in turn, can affect the beverage and food-processing industries that use agricultural feedstock as a primary input.

Food loss and waste illustrate this value leakage clearly. Globally, UNEP estimates that 1.05 billion tonnes of food waste was generated in 2022 across retail, food service and households, equivalent to 19 percent of food available to consumers.[96] This is in addition to Food and Agriculture Organisation (FAO)'s estimate that 13.2 percent of food[97] is lost in the supply chain after harvest and before the retail stage. For businesses, such losses translate into higher input costs, lower yield, production inefficiencies, supply chain leakages and unrealised revenue from rejected or unsold output. At a system level, food loss and waste are estimated to account for 8–10 percent of global greenhouse gas emissions and approximately US$1 trillion in annual economic cost.[98] Global institutions such as FAO and UNEP increasingly frame food loss and waste not only as an environmental issue, but as a structural food-system inefficiency linked to economic loss, resource use and greenhouse gas emissions.

These are not isolated sustainability concerns. They are indicators of structural inefficiency across the food value engine. Sustainability, therefore, is not a parallel ESG agenda, but a business lens through which resource efficiency, ESG compliance, climate resilience and future market readiness can be systematically strengthened.

4.7.1 Resource efficiency as a structural driver of cost performance

To understand how sustainability can influence a business in a practical way, one needs to examine the four core cost drivers within the food value chain. These are **energy, water, materials and packaging.** Each of these elements impacts operating costs, determines how effectively resources are used within production processes and defines the amount of waste and loss generated across the entire chain. Consequently, resource efficiency improvements can become key factors in improving the business position.

1. **Energy consumption** remains a major operating cost across production, cold chain and distribution. Operational efficiency is not only about reducing consumption, but optimising energy use based on process needs. Measures such as refrigeration optimisation, heat recovery and efficient boilers and compressors can improve cost stability, operational performance and resilience against energy price fluctuations.

2. **Water efficiency** is increasingly viewed as both a sustainability and business continuity priority. Efficient water management through wastewater reuse, improved wash cycles, reduced water intensity and better wastewater treatment can lower freshwater dependency and operational risks. Industry practices such as watershed programmes and Zero Liquid Discharge (ZLD) systems are also helping improve resilience in water-stressed regions.

3. **Material efficiency** offers a direct opportunity to improve margins and reduce waste. Losses across procurement, storage, processing and transport increase costs without generating value. Companies are increasingly focusing on by-product utilisation, such as converting fruit waste into pectin, dairy waste into protein products and agricultural residue into biomass fuel, creating additional revenue opportunities while reducing disposal costs.

Another important area of sustainability, where the above concepts overlap, is **packaging.** Decisions related to packaging are directly tied to operating costs and sustainability. Indeed, one should look at packaging as a combination of cost (material), energy required for transport, waste generated, potential shelf-life and food security. By changing packaging, businesses would have to balance these factors against one another and ensure compliance with new requirements. Packaging introduces another critical dimension where cost efficiency intersects with compliance, shelf life and product integrity. Packaging decisions influence material cost, logistics efficiency, product stability and alignment with

[96] Food Waste Index Report 2024. Think Eat Save: Tracking Progress to Halve Global Food Waste

[97] Food Loss and Food Waste Database

[98] Food loss and waste account for 8-10% of annual global greenhouse gas emissions; cost USD 1 trillion annually | UNFCCC

evolving requirements on plastic waste and extended producer responsibility. Reducing packaging material in isolation can compromise product stability or shelf life, increase spoilage and offset potential gains.

As a result, the focus is shifting towards optimisation of packaging design, balancing durability, recyclability and regulatory alignment while maintaining product quality. Packaging optimisation is also increasingly being shaped by evolving regulatory expectations under EPR frameworks. Industry participants noted that fragmented state-level packaging recovery requirements, layered on top of national EPR obligations, may create operational complexity through additional labelling, traceability and reverse logistics requirements. As a result, companies are increasingly prioritising packaging redesign approaches that simultaneously address recyclability, operational feasibility and compliance readiness.

Across these dimensions, sustainability functions as an operational discipline rather than a standalone initiative. It enables closer alignment between inputs, processes and outputs, ensuring that resource use translates into lower leakage and greater reliability.

4.7.2 Compliance readiness as a condition for market participation

Compliance within the food value chain is no longer limited to licenses, food safety requirements or periodic audits. It is increasingly becoming a continuous operating requirement driven by regulation, disclosure expectations and buyer-led standards. Compliance readiness today depends not only on meeting requirements, but on demonstrating them consistently across sourcing, processing, packaging, storage and distribution.

In India, food businesses must comply with food safety, quality and environmental regulations, including licensing under the food safety framework and requirements related to emissions, effluent discharge, waste handling and resource management. At the same time, compliance expectations are expanding. Plastic Waste Management Rules and EPR obligations have formalised packaging compliance, while SEBI's BRSR and BRSR Core have strengthened ESG disclosure, assurance and value chain reporting requirements for listed entities.

Industry players highlighted that compliance expectations are increasingly being shaped by organised retailers, QSRs, institutional buyers and export markets, where supplier assessments may include food safety systems, audit readiness, traceability, packaging compliance and quality consistency. Traceability is therefore becoming a strategic operating capability, enabling businesses to track products across the value chain, respond to recalls and strengthen accountability. Companies indicated that inadequate traceability systems could expose businesses to regulatory, reputational and market-access risks, particularly in export-oriented markets.

Industry leaders also highlighted the growing policy focus on food labelling, ultra-processed foods (UPF) and HFSS products. They emphasized the importance of science-based regulatory frameworks, noting that evolving disclosure and labelling requirements may increasingly influence product formulation, packaging design and consumer communication strategies.

4.7.3 Climate resilience as a driver of cost stability and supply security

Climate variability is increasingly becoming a business risk for the food value chain due to its dependence on agricultural inputs, water availability, temperature-sensitive storage and reliable logistics. Changes in rainfall, heat stress, water scarcity and extreme weather events can affect crop yields, raw material quality, harvesting cycles and supply continuity, ultimately impacting procurement costs, production planning and inventory reliability.

The impact is particularly significant in perishable and quality-sensitive categories, where inconsistent raw material availability can lead to higher rejection rates, shorter shelf life and increased dependence on spot procurement. Temperature fluctuations can also increase energy demand across cold-chain operations and raise spoilage risks during storage and transportation.

Industry players highlighted that climate resilience is increasingly linked to continuity of operations rather than only long-term sustainability strategy. Diversifying sourcing regions, strengthening supplier engagement, improving inventory planning and enhancing cold-chain and water management systems are becoming critical for reducing operational vulnerability. These measures can help stabilise costs, improve supply reliability and reduce the risk of production disruption in climate-sensitive supply chains.

4.7.4 Sustainability as a criterion for future market readiness

Beyond cost and risk, sustainability-linked capabilities are increasingly influencing market access and supplier selection, particularly in organized, institutional and export-oriented channels. Buyers are placing greater emphasis on consistency, food safety, traceability, documentation and responsible resource management,

making sustainability a practical requirement for participation in higher-value markets.

Indian FMCG companies highlighted that India's food export opportunity increasingly depends on localisation of products, stronger global operating presence and compliance with international quality and traceability standards. Businesses with stronger operating systems, quality assurance mechanisms and sustainability-linked sourcing practices are expected to be better positioned in global markets.

This shift is visible across organized retail, QSRs, institutional buyers and export markets, where supplier expectations increasingly include audit readiness, certification, packaging compliance, residue limits, process integrity and traceability. While sustainability may not always generate an immediate price premium, companies with stronger resource efficiency, compliance readiness and resilient supply systems are more likely to secure long-term buyer relationships, reduce rejection risks and maintain access to formal and export-oriented channels.

Industry trends also indicate that sustainability capabilities are increasingly being embedded into core operating systems through better tracking of metrics such as yield, rejection rates, resource intensity and supply disruptions. At the same time, technology and AI are expected to play a growing role across demand forecasting, logistics optimisation, warehouse automation, quality assessment and production monitoring. Industry leaders indicated that the focus is gradually shifting from basic data visibility towards AI-enabled decision support systems that can improve responsiveness, reduce inefficiencies and strengthen agility across the food value chain.

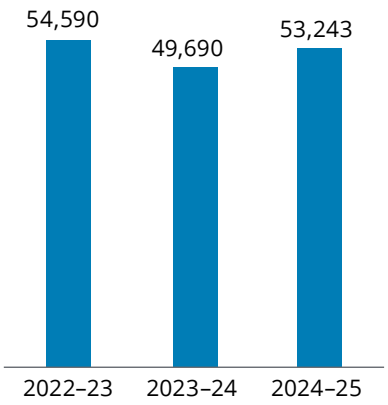


Chapter 5: India's global ambition: Competitiveness, exports and trade architecture

5.1 India's export footprint today

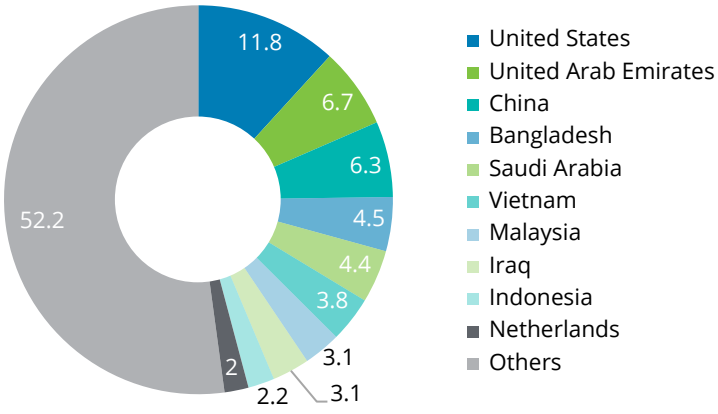
India possesses a strong agricultural base, being the world's largest producer of milk and among the leading producers of fruits, vegetables, rice, pulses and spices.[99][100] However, this production strength has not yet translated proportionately into global export leadership.

All Indian agri products: Export trend (US$ Mn)



Source: Agriexchange, APEDA

Key Food & Agri products export destinations of India (2024-25)



Source: Agriexchange, APEDA

In FY2025–26, India's agricultural and processed food exports were approximately ~US$52.6 billion.[101] While this reflects steady participation in global markets, export growth has remained incremental rather than transformative.

In comparison, key competing economies significantly outperform India:

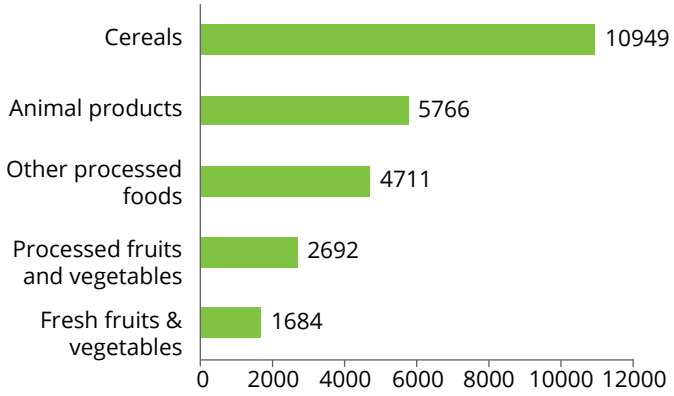
- Brazil's agri-food exports reached US$169.2 billion[102] in 2025, which is over three times India's export base.
- Vietnam and Thailand stand at ~US$70 billion and ~US$52 billion respectively in 2025,[103] despite much smaller bases

This gap is not driven by differences in production scale, as India matches or exceeds these countries across multiple categories. Instead, the divergence reflects differences in the ability to convert primary production into globally competitive, scalable and policy-stable export value.

India's export basket remains concentrated in a limited number of categories. Cereals (predominantly rice at its peak), marine products (US$8.28 billion in FY2025–26),[104] and livestock and meat products together constitute more than 50 percent of total agri-food export value. These are largely commoditised, price-sensitive categories where India competes on volume and cost, not on brand equity, processing depth or proprietary formulation.

[99] India at a Glance. Food and Agriculture Organization, 2026
[100] India's Resilient Production Systems in Agriculture, PIB, Apr 2026
[101] Agriculture exports up 2.8 pc to USD 52.55 bn in 2025-26, Economic Times, April 2026
[102] Brazil Agribusiness Exports Hit Record US$169.2 Billion in 2025, Global-agriculture.com, January 2026
[103] Vietnam's Agricultural Export Success, Deko Holding, March 2026
[104] Seafood exports reached USD 8.28 billion (₹72,325.82 crore) in FY2025-26 - an all-time record, Marine Products Export Development Authority (MPEDA), April 2026

India's key food export categories, 2025–26 till Feb (US$ Mn)



Source: Agriexchange, APEDA

Additionally, a significant share of India's packaged food exports continues to be directed toward diaspora-led demand, which tends to be price-sensitive and limited in scalability. Expanding into mainstream global consumption markets remains a critical requirement for sustained export growth.

Similarly, industry perspectives indicate that many companies have historically prioritised domestic growth over international expansion, given the scale and attractiveness of the Indian market.

In global sourcing evaluations, India also does not consistently emerge as a preferred sourcing destination despite competitive conversion costs. Structural constraints such as regulatory complexity, licensing requirements and shipping lane reliability have been cited as limiting factors.

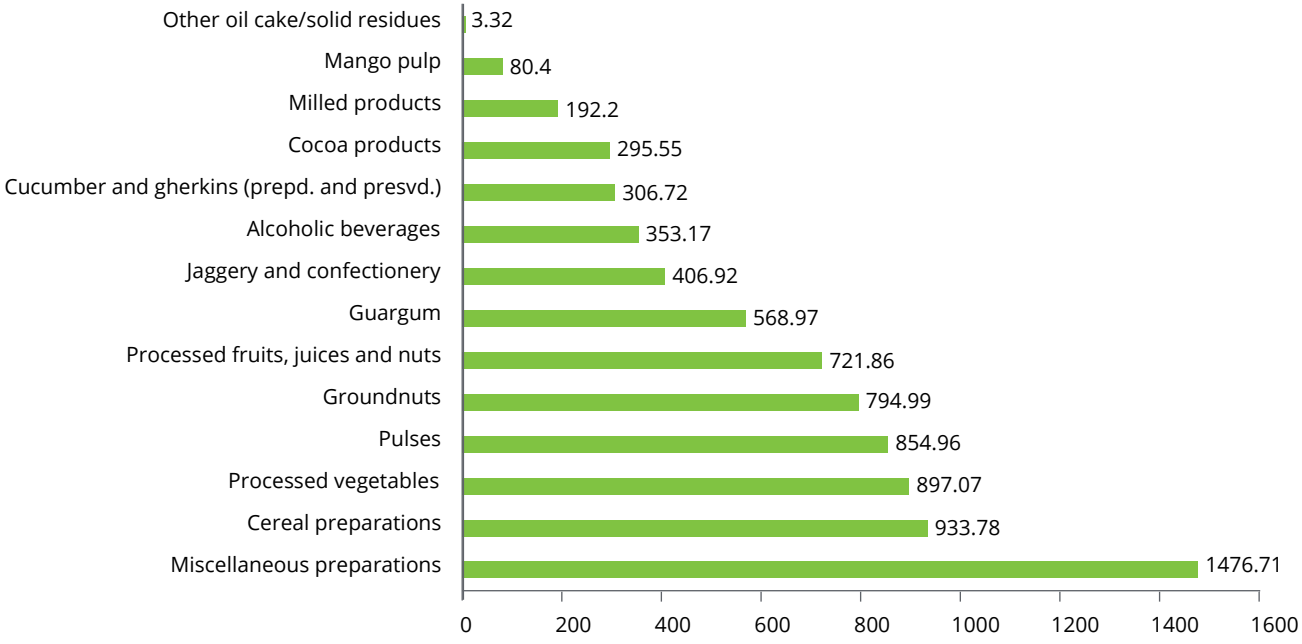
India's agricultural strength supports steady export participation, but reliance on commodities and diaspora-driven demand has constrained diversification and scale, allowing smaller economies to outperform through more value-added and globally positioned export portfolios. However, broadening into value-added, diversified exports presents a significant opportunity for accelerated global growth.

5.1.1 The value addition gap

Value-added processing in India remains relatively low despite strong agricultural production, with significant headroom for scaling processing-led exports.

The share of processed and value-added products in the export basket has grown from 13.7 percent of agricultural exports in FY2014–15 to 20.4 percent[105] in FY2024–25.

Processed food exports FY25 (US$ Mn)



Source: Agriexchange, APEDA

[105] Ministry of Food Processing Industries (MoFPI) / PLISFPI data, PIB, April 2026

While this represents progress, it remains below that of several comparable economies. For instance, USA derives approximately 25 percent of its agri-exports from processed categories; China exceeds 50 percent.[106] Comparable Asian food exporting countries such as Thailand and Vietnam have built processed-food export identities that command premium positioning in global retail and foodservice channels.

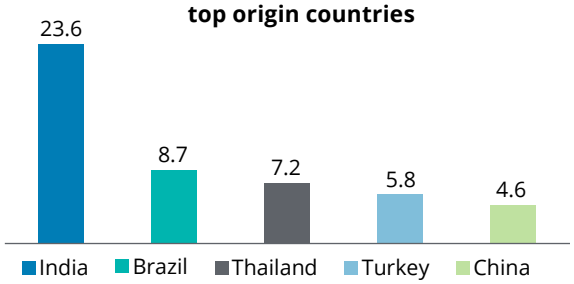
Spices offer the sharpest illustration of this gap. India commands roughly 22 percent of the US$21 billion global spice export market, valued at US$4.72 billion in FY2024–25.[107] However, only about 48 percent of these exports are value-added (e.g. extracts, oleoresins, blends and packaged products), while the remaining 52 percent is exported in raw or minimally processed form.[108] Consequently, a significant portion of value accrues to processors in importing countries rather than domestic Indian producers.

Despite progress in value-added exports, India continues to trail global peers, with a significant share of output still in raw form; expanding processing depth presents a clear opportunity to capture greater value.

5.1.2 Quality perception and compliance issues:

India's export competitiveness is also affected by persistent quality and food safety concerns. Between 2000 and 2022, India accounted for the highest number of notifications in the EU's Rapid Alert System for Food and Feed (RASFF) in the herbs and spices category, representing 23.6 percent of total notifications, ahead of Brazil (8.7 percent), Thailand (7.2 percent), Turkey (5.8 percent) and China (4.6 percent).[109] The predominant hazards flagged were pesticide residues, mycotoxins (particularly aflatoxins), and in recent years, ethylene oxide contamination.

EU RASFF notifications for herbs & spices: top origin countries



Source: Eissa et al. (2024): Contamination of herbs and spices

Similarly, between January 2024 and April 2025, the US FDA recorded approximately 2,687 refusals of Indian-origin food shipments.[110] These trends indicate systemic challenges rather than isolated incidents. As a result, global buyers often incorporate a risk premium when sourcing from India, which effectively reduces price realisation.

Regulatory divergence further compounds this issue. Differences in maximum residue limits (MRLs) and compliance frameworks between India and importing markets limit market access and increase rejection risk.

High rejection rates and contamination concerns have led to systemic risk perceptions and pricing penalties for Indian exports, making improvements in food safety, compliance systems and standards alignment essential for market access.

5.1.3 Supply reliability concerns:

Industry leaders highlight that inconsistent export policies create planning uncertainty for exporters and can impact long-term market positioning and brand equity in international markets.

Periodic export bans, minimum export prices and other trade restrictions imposed on commodities such as rice, wheat, sugar and onions, while justified from a domestic food security perspective, create uncertainty for international buyers. From a global sourcing standpoint, policy volatility is often treated as a structural risk. This affects India's positioning as a long-term, reliable supplier and limits its participation in multi-year contracts and strategic sourcing arrangements.

Policy volatility in key commodities continues to impact India's reliability as an export partner, creating buyer uncertainty and limiting long-term contracts; improving policy stability will be critical to strengthening India's position as a dependable global supplier.

5.2 Value addition opportunities and priority categories

Strengthening value addition is not only a revenue opportunity but an essential strategic requirement for enhancing India's competitiveness in global food markets. As competing exporters in South America and Southeast

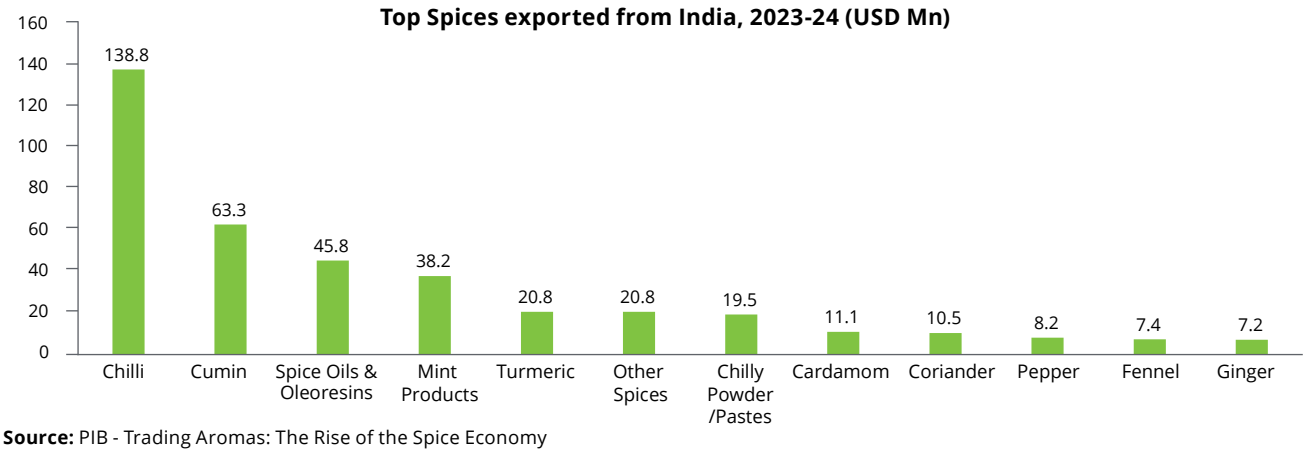
[106] India's Agricultural Exports: Performance, Challenges, and Future Prospects, RuralWorld, 2026
[107] FY2024-25 spice exports - 1.799 million MT valued at USD 4.72 billion (□39,994 crore), all-time record, Spices Board of India
[108] India's share in global seasoning market a paltry 0.7% despite being world's largest producer of spices: WSO, The Hindu, March 2025
[109] Eissa et al. (2024): Contamination of herbs and spices - a 23-year EU RASFF notifications analysis, Journal of Food Safety, Wiley Online Library.
[110] U.S. FDA Compliance for Indian Companies, US FDA, Sep 2025

Asia continue to improve efficiency and narrow cost differentials, reliance on bulk commodity exports is unlikely to sustain long-term growth or margins.

Four priority categories present strong potential:

5.2.1 Key high-potential product categories:

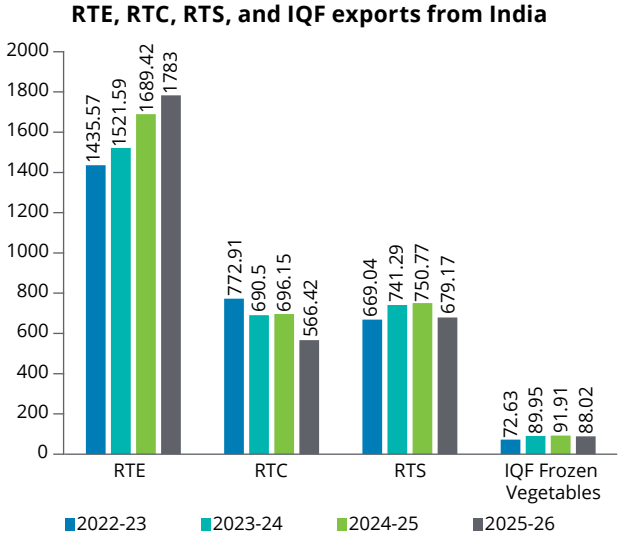
1. **Spices, oleoresins and functional blends:** India's more than 20 percent global market share in raw spices creates a strong foundation for expansion into higher-value segments such as extracts and blends, which typically command higher realisations.[111] However, scaling participation in these categories requires investments in critical enablers such as sterilisation technology, infrastructure for compliance with international MRLs and capabilities in consumer-grade packaging. Without these, value migration from raw spices to processed derivatives remains constrained.



Source: PIB - Trading Aromas: The Rise of the Spice Economy

2. **Functional ingredients and nutraceuticals:** India's extensive base of botanical ingredients, including turmeric, ashwagandha, moringa, fenugreek and black pepper, positions it favourably in the growing global market for nutraceuticals and functional ingredients. The global nutraceuticals market is projected to grow from US$463.5 billion in 2025 to US$762.3 billion by 2035, registering a CAGR of 5.1 percent.[112] India's participation currently remains largely concentrated in bulk botanical extracts rather than standardized, clinically validated and Generally Recognized As Safe (GRAS) formulations that command premium pricing. Advancing from raw botanical extracts to high-value functional ingredients requires capabilities in clinical validation, analytical standardization and regulatory compliance across key markets such as the USA, EU and Japan.

3. **RTC/RTE and related formats:** The global convenience food market exceeds US$500 billion.[113] Indian cuisine is among the top most-consumed ethnic cuisines in the UK, Australia, the Gulf and North America, but the commercial value of this preference is captured predominantly by locally manufactured Indian-inspired products in destination markets, not by Indian-origin exports. Key gaps include packaging technology and shelf-life extension. Products formulated for the Indian domestic market often fail EU and US export specifications on labelling, allergen disclosure and extended shelf-life requirements.



Source: Agriexchange, APEDA

[111] FY2024-25 spice exports - 1.799 million MT valued at USD 4.72 billion (₹39,994 crore), all-time record, Spices Board of India
[112] Nutraceuticals Market, FMI; FutureMarketInsights, July 2025
[113] Convenience Food Market, TowardsFnB, Jan 2026



4. **Byproducts and organic/clean-label segments:** Industry inputs indicate significant opportunities to enhance value realisation through improved utilisation across processing value chains, including more efficient use of by-products in segments such as fruit processing and dairy.

   Further, India has the world's largest base of certified organic producers at approximately 4.4 million; yet organic export value remains disproportionately small.[114] Accessing premium pricing markets such as EU, USA and Japan will depend on addressing key certification and compliance constraints. These include establishing end-to-end traceability from farm to export consignment, ensuring accredited laboratory verification and maintaining strict segregation in processing systems. This represents a systems and execution challenge rather than a constraint in production capacity.

Scaling value-added processing is critical for India's export competitiveness, with strong opportunities across spices, nutraceuticals, convenience foods and byproducts; contingent on strengthening compliance, certification and processing capabilities to meet global market requirements.

5.2.2 Key capability gaps in the export ecosystem:

1. **Quality assurance and traceability systems:** Global buyers increasingly require robust quality assurance systems that integrate traceability across the supply chain. While compliance frameworks exist in India, their implementation remains uneven and is often driven by regulatory requirements rather than as a source of competitive differentiation.

   Adoption of internationally recognised certifications such as BRC, FSSC 22000, SQF and GLOBALG.A.P. is concentrated among a limited set of export-oriented firms. Farm-to-facility traceability, which global retailers and foodservice operators now treat as a baseline procurement requirement, is underdeveloped across the supply chain. National Accreditation Board for Testing and Calibration Laboratories (NABL)-accredited testing laboratories, while growing in number, continue to face capacity and turnaround-time constraints, creating bottlenecks for exporters seeking timely certification and market access.

2. **Cold-chain infrastructure:** India experiences annual post-harvest losses of ~INR92,651 crore, with limited cold chain infrastructure being a significant contributing factor.[115] The constraint is not limited to storage capacity alone but spans the entire logistics chain required to maintain product integrity from farm to export destination, including pack houses, ripening chambers, refrigerated transport, irradiation units and pre-cooling at farm gate, etc. Addressing these gaps is critical for enabling exports in high-value perishable categories.

[114] Exploring the Potential of India's Organic Food Market, Invest India, October 2023
[115] From Farms to Fridges: How Cold Chain Infrastructure is Transforming India's Agriculture, IBEF, November 2025

3. **Formulation and packaging readiness:**
   Export markets impose stringent requirements related to packaging materials, labelling formats, shelf life and regulatory compliance. Many manufacturers, particularly in the mid-market segment, lack the technical capabilities required to meet these specifications. As a result, products developed for domestic consumption often fail to meet international standards, not due to quality issues alone but due to deficiencies in formulation stability, packaging compliance or labelling accuracy.

4. **Manufacturing predictability and volume reliability:**
   Consistency in product quality, sensory attributes and delivery timelines is a critical factor in global sourcing decisions. Variability in raw material quality, coupled with limited process standardisation and automation, results in inconsistencies in output.

   This affects India's ability to meet large-scale, multi-year supply commitments, leading buyers to diversify sourcing across multiple geographies. Addressing this requires investment in upstream sourcing systems, process control and manufacturing automation to ensure predictable output at scale.

Gaps in traceability, cold-chain infrastructure, packaging readiness and manufacturing consistency continue to limit India's ability to meet global sourcing requirements at scale, with capability-building needed to support reliable export growth.

5.3 Trade agreements, standards and market access

India has significantly expanded its global trade footprint in recent years, marking a shift toward a more proactive trade strategy. Over the past decade, particularly since 2021 India has signed or concluded a new generation of FTAs and Comprehensive Economic Partnership Agreements (CEPAs), covering partners across the Middle East, Europe, Oceania and Africa. In just the last 5–6 years alone, India has signed multiple major agreements including those with the UAE, Australia, EFTA and the UK, contributing to a network of approximately nine trade agreements spanning 38 countries. India's trade architecture has improved, but its impact on food exports remains uneven.

Opportunities and challenges for exporters under FTAs
FTAs have created significant opportunities for Indian exporters by improving market access and enhancing price competitiveness relative to non-FTA partners. For instance, agreements such as the India–Australia ECTA (Economic Cooperation and Trade Agreement), India–UAE CEPA (Comprehensive Economic Partnership Agreement) and ongoing negotiations with the UK and EU have enabled duty-free or preferential access for a range of agricultural and processed food products, contributing to growth in exports across categories.

Improved tariff parity in key markets also strengthens India's ability to compete with established export hubs, while opening opportunities for diversification beyond traditional destinations. In this context, FTAs act as an important lever to expand India's export footprint, particularly in value-added segments where global demand continues to grow.

While FTAs have expanded access, the consequent gains for food exports have been selective. Many key agricultural categories remain outside tariff liberalisation, limiting immediate impact.

Furthermore, export competitiveness is increasingly shaped by non-tariff factors such as:

- **Regulatory divergence:** Differences in standards (MRLs, contaminants, labeling and traceability) restrict access to key markets such as the EU and US, shifting the bottleneck from production to compliance
- **Traceability:** Now a baseline requirement, with gaps posing reputational risk at scale

In addition, exporters face operational challenges related to certification costs, testing infrastructure and timelines for regulatory approvals. These constraints disproportionately affect small and mid-sized companies.

Global sourcing decisions are also influenced by broader factors such as ease of doing business, regulatory processes and logistics reliability, where India does not consistently rank as a preferred destination despite cost competitiveness.

Implications for domestic players:
FTAs have important structural implications for domestic industry dynamics.

On one hand, tariff liberalisation increases competitive intensity by enabling greater access for global players in the Indian market. Experience from the India–Malaysia CECA (Comprehensive Economic Cooperation Agreement) illustrates this dynamic, where reduced tariffs on palm oil contributed to a surge in imports, placing pressure on domestic oilseed producers and leading to subsequent tariff adjustments to protect local industry.[116]

[116] India's palm oil import duty hike a 'temporary challenge', says ministry, UKRAGROCONSULT, December 2024

Similarly, under the India–EU FTA, reductions in duties on processed foods and ingredients, from ~30 –150 percent to near zero, are expected to increase competition from European imports in segments such as bakery ingredients, chocolate and specialty fats, potentially eroding cost advantages for domestic players.[117] In the near term, this can lead to pricing pressure and margin compression, particularly for capability-constrained firms.

However, FTAs also create meaningful opportunities. They enable access to lower-cost inputs, advanced technologies and global supply chains, which can support domestic value addition and product upgrading.

As a result, FTAs shift competition from tariff-protected environments to more open, capability-driven markets, where outcomes depend on firms' ability to compete on quality, innovation and scale.

Creating a win–win outcome will require aligning export growth ambitions with domestic capability development:

Realising the full benefits of FTAs while managing their implications for domestic industry requires a calibrated approach that simultaneously enables export expansion and strengthens domestic competitiveness.

A win–win outcome can be achieved by:

- **Maximising export-side gains:** Leveraging FTAs to expand presence in partner markets through targeted support for high-potential categories, improved market access utilisation and stronger alignment with destination market standards
- **Calibrating market opening:** Phased liberalisation and safeguard mechanisms in sensitive sectors to allow domestic players time to adapt to increased competition
- **Building domestic capabilities:** Investing in quality systems, processing depth, innovation and scale to ensure firms can compete effectively in both domestic and global markets
- **Using FTAs for ecosystem upgrading:** Using access to global inputs, technologies and partnerships to enhance productivity and value addition within India
- **Supporting MSME participation:** Improving access to certification, testing infrastructure and export financing to enable broader participation in global value chains

Taken together, these measures can ensure that FTAs function not only as instruments for market access, but as catalysts for both export growth and domestic industry strengthening, enabling more balanced and sustained outcomes.

FTAs are expanding India's export access while intensifying domestic competition, but uneven outcomes underscore that tariffs alone do not determine success, with results driven by compliance, execution capability and ecosystem readiness.

5.4 Developing India's global food brand presence

India's greatest long-term competitive advantage in global food markets lies not in low costs, but in its rich culinary heritage, diversity of ingredients and strong global demand for Indian flavours. Despite this, much of the premium value is captured by brands based outside India, even when the underlying ingredients originate domestically. Indian-origin products are often positioned within ethnic or value segments rather than in premium or mainstream categories in developed markets.

This reflects a gap in brand development, product positioning and consumer perception that needs to be addressed to improve value realisation.

5.4.1 Transition towards brand-led exports

Transitioning to a brand-led export model requires a fundamental shift that extends beyond marketing. It entails ensuring consistent product quality, strengthening packaging to support premium positioning and developing clear brand narratives anchored in provenance and authenticity. While there are early indications of progress in this direction, these remain limited in scale and have yet to translate into broad-based transformation. Scaling into mainstream global categories continues to be a key challenge.

Industry perspectives highlight several priorities to enable this transition:

- A substantial share of Indian exporters continues to rely on diaspora-led demand. Sustained export growth will require building brands with broader consumer appeal and targeting mainstream segments in international markets.
- Global expansion requires greater clarity on operating models, including the appropriate mix of B2B supply, private label partnerships and owned brand strategies.

[117] Factsheet - EU-India Free Trade Agreement: EU agri-food exports, European Commission, 2026

- Success in international markets will also depend on the ability to tailor products to local consumer preferences and regulatory requirements, supported by sustained investment in brand building and market development.

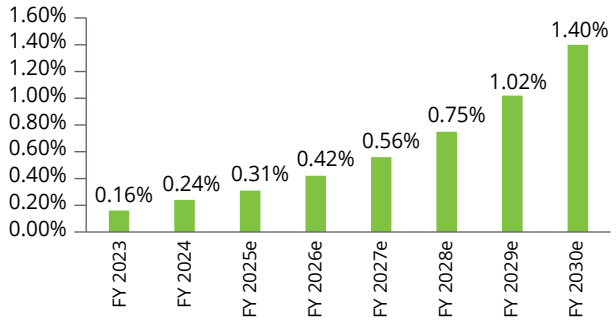
Moving beyond diaspora-led exports, India's next phase of growth will depend on building globally relevant brands supported by consistent quality, localised offerings and clearly defined international operating models across markets.

5.4.2 Role of cross-border e-commerce

Digital channels are lowering barriers to entry, enabling brands to test products and build international presence without large upfront investments.

Cross-border e-commerce is emerging as a critical enabler for this transition. The global cross-border B2C e-commerce market was valued at US$2.8 trillion in 2023 and is projected to exceed US$16 trillion by 2032, growing at a CAGR of 21.6 percent.[118] India's share is expected to expand significantly, from 0.16 percent in FY2023 to 1.41 percent by FY2030, offering Indian brands a low-barrier entry into international markets.[119] These platforms allow exporters to test markets, refine pricing and formats and build brand identity through storytelling. Additionally, India's large global diaspora provides a ready consumer base for authentic Indian products, particularly in markets where mainstream retail access is limited.

India's share in global cross-border B2C e-commerce market



Source: Netscribes

Cross-border e-commerce is lowering entry barriers for Indian brands, enabling market testing and early global presence; scaling this channel effectively can accelerate the transition towards brand-led exports and broader international market participation.

5.4.3 Managing product localisation in international markets

Expanding into international markets requires balancing authenticity with localisation. While maintaining authenticity is important for differentiation, selective adaptation is necessary to align with local taste preferences, regulatory requirements and consumption habits.

This includes reformulating products for nutritional compliance, adjusting flavour profiles and adapting packaging formats. A phased approach to localisation, based on market feedback, is typically expected to be more effective than either complete standardisation or excessive adaptation.

Successful international expansion will depend on balancing authenticity with local relevance, with a phased approach to product adaptation emerging as the most effective way to meet diverse consumer and regulatory requirements.

5.4.4 Strengthening India's global positioning

India's export potential is supported by its agricultural diversity, culinary heritage and alignment with global trends such as health, wellness and clean-label consumption.

Realising this potential requires simultaneous investment in three areas:

- robust quality and traceability systems to validate provenance claims
- sustained, market-specific brand-building (supported in part by government incentives);
- development of talent and institutional capabilities to manage global branding, regulatory complexity and international distribution.

Companies that can integrate these capabilities and deliver consistently across markets are likely to achieve stronger positioning and improved value realisation in global food trade.

Strengthening India's global positioning will depend on integrating quality assurance, sustained brand-building and institutional capability, enabling exporters to move from fragmented participation to consistent, premium positioning across global markets.

[118] Global Cross-Border E-Commerce Market, Astute Analytica, Feb 2024
[119] Cross-border B2C E-commerce Market in India (2025 - 2030), Research and Markets, March 2025

Chapter 6: Innovation, technology and ecosystem enablement

India's food processing sector, a central pillar of the country's food economy and a major source of employment across both formal and informal segments, remains structurally under-digitised. Fragmented supply chains, lack of adequate infrastructure and limited access to technology, particularly for SMEs, persist alongside one of the world's most vibrant and fast-evolving consumer-facing ecosystems.

This structural gap is now converging with powerful enablers such as accelerating AI adoption, a deep startup ecosystem and rising public investment in digital and physical infrastructure. Together, these shifts are strengthening the role of innovation and ecosystem support in improving productivity, resilience, food safety and global competitiveness across the food value chain.

Sector snapshot- Innovation and technology	
India foodtech market: ~13.7% CAGR from 2025 to 2034[120]	US$ 14.2 → ₹ 46.1 billion
Global AI in F&B market growth, 2024–30[121]	~39% CAGR
Department for Promotion of Industry and Internal Trade (DPIIT) recognised food and beverage startups[122]	11,000+
IndiaAI Mission outlay[123]	INR10,300 crore+
Indian startup funding, 2024[124]	US$12 billion+
Indian F&B sector funding, 2024[125]	US$541 million

6.1 Technology and AI: Enabling scale, efficiency and better decisions

Technology is the central enabler of growth, resilience and profitability in India's food sector. AI, IoT and analytics are now embedded across the value chain, from demand planning and procurement to manufacturing, marketing and distribution. The more meaningful shift, however, lies in how these tools are being used. The focus is gradually moving beyond digitisation itself, toward improving the quality, speed and consistency of decision-making.

6.1.1 The technology imperative: Why now?

Over the next few years, technology adoption will become an important differentiator for companies seeking to scale efficiently and maintain profitability. Four structural shifts are expected to accelerate this transition:

- **Cost pressures are becoming more persistent:** Volatility in input costs, whether in edible oils, fertilisers or crude-linked packaging, has made operational discipline more critical. Margin management can no longer rely primarily on pricing; it increasingly depends on better planning, sourcing and execution.

[120] India Foodtech Market Size, Share, Trends and Forecast by Component, Application, Industry, and Region, 2026-2034, IMARC
[121] Global Ai In Food & Beverages Market Size & Outlook, Grand View Horizon
[122] State's Startup Ecosystem Ranking, Startup India, January 2026
[123] Transforming India with AI, PIB GOV, October 2025
[124] Indian Startup Funding Touches $12 Bn+ In 2024, Stabilises To 2020 Levels, INC 42, December 2024
[125] INC 42 Industry Insights F&B

- **Channel dynamics are evolving rapidly:** The expansion of e-commerce, quick commerce and D2C models has created consumer expectations around freshness, traceability and customisation that manual planning systems cannot meet. These channels are inherently technology-led, requiring real time data and rapid, analytics driven decision making to win on availability, service and speed. For category leaders, e-commerce and quick commerce together now contribute close to one-fifth of revenue and play a critical role in accessing premium, high margin consumers, enabling targeted launches and preimmunised assortments.[126]
- **Infrastructure readiness has arrived:** A 900 million+ internet user base,[127] robust 4G/5G penetration and the increasing availability of affordable digital infrastructure tools have made enterprise-grade technology deployment economically viable for mid-sized food businesses, not only sector leaders. The rise of low code/no code platforms and easy access to GenAI tools has further lowered entry barriers, enabling faster, cheaper and simpler deployment even for small and mid sized food businesses. Together, this has accelerated technology adoption across the ecosystem, democratising digital capability and compressing the scale advantage once held by sector leaders.
- **Capital allocation is accelerating:** Industry surveys indicate that approximately 84 percent of Indian CEOs are raising new capital or reallocating budgets to invest in generative AI, against a global average of 70 percent.[128] Around 43 percent of Indian FMCG companies have already adopted AI in some form across forecasting, supply chain and consumer analytics.[129]

6.1.2 From digital transformation to decision transformation

An emerging frame articulated by industry experts is the shift from *digital transformation to decision transformation,* the recognition that the strategic value of technology lies not in dashboards or data capture, but in the quality, speed and bias-correction of the decisions those systems enable.[130] This evolution typically unfolds across three stages.

- **Stage 1: Data capture and transparency:** Digitisation of data capture across functions such as production, logistics, sales - and the consolidation of that data into a unified, real-time view accessible across the organisation.
- **Stage 2: Digital dashboards and visibility:** The era most described as "digital transformation"– involves the building of operational dashboards that provide consolidated, on-demand business visibility, replacing fragmented periodic, function-specific reports.
- **Stage 3: AI-enabled decision transformation:** At this stage, the focus shifts from simply having visibility of data to using it more actively in decision-making. AI tools not only bring data together but also help teams to identify root causes and suggest actions, like how some platforms' dashboards translate insights into clear next steps. This reduces dependence on individual judgement and supports faster, more consistent decisions across areas such as procurement, pricing, replenishment and marketing.
- **Aspirational principle: decide centrally, act locally:** A more balanced operating model is emerging, where decisions are informed centrally but adapted and executed locally, allowing for both consistency and flexibility.

Looking ahead, technology adoption is expected to move beyond supporting decisions to automating routine decision-making, enabling companies to respond faster and operate with greater consistency across functions.

6.2 Use of AI and technology across the food value chain

AI is increasingly being applied across the food value chain, from forecasting demand and developing new products to improving manufacturing processes and strengthening channel engagement. AI enables more consistent, data-led decision-making, help organizations to respond more quickly as per shift in demand while bringing greater alignment across planning, execution and market-facing functions.

6.2.1 AI in demand forecasting and supply chain operations

India's food supply chains are transitioning from static, experience-led planning to AI-driven demand sensing. Traditional approaches, based on historical averages, manual judgement and spreadsheet workflows,

[126] Industry Expert Interview, Deloitte, May 2026
[127] India's internet users to exceed 900 million in 2025, driven by Indic languages, IBEF, January 2025
[128] Nearly 84% Of Indian CEOs Are Raising & Reallocating Capital For Gen AI Spends, INC 42, December 2023
[129] How is AI transforming FMCG industry in India?, Stratefix, January 2026
[130] Industry Expert Interview, Deloitte, May 2026



increasingly fail to reflect the volatility introduced by quick commerce, e-commerce, climate variability and shortened product life cycles. AI adoption in supply chain functions is now growing at over 30 percent annually.[131]

- **Demand sensing is replacing static forecasts:** Leading players are deploying AI systems that incorporates point-of-sale data, e-commerce demand signals, weather forecasts festival calendars, pricing actions and social media sentiment, continuously recalibrating forecasts as conditions evolve.[132]
- **Forecast accuracy is improving through AI integration:** Industry research indicates that AI-enabled forecasting can reduce forecast error by 20 –50 percent,[133] lower lost sales and out-of-stock incidents by up to 65 percent[134] and reduce warehousing costs by 5 –10 percent[135] through better inventory placement in food and beverages sector.
- **Frontline AI is being used for sales execution:** Beyond forecasting, AI is moving into field execution. Sales teams are being guided through tools like Geocoded outlet-level briefings, which are generated for each salesperson before they enter a store, tailored to that outlet's history, priorities and follow-up actions. At the same time, capabilities such as dynamic beat planning and AI enabled tele-ordering are helping manage challenges like absenteeism and attrition. Together, these tools reduce dependence on individual salesforce experience and enable more consistent execution at scale.[136]
- **Logistics optimisation is generating real savings:** Live AI applications in route planning, consolidated load optimisation and Carrying and Forwarding (C&F) dispatching are generating meaningful efficiency gains. A 5 percent cost improvement is a realistic, achievable benchmark for the supply chain function.[137]
- **Farm-to-shelf intelligence is emerging:** Farm-level AI applications such as crop disease and pest forecasting and spray guidance to reduce indiscriminate pesticide use are extending decision intelligence upstream into the supply base, with measurable benefits on quality, traceability and grower economics.[138]

In the coming years, supply chains are likely to become more responsive and self-adjusting, using real-time data to quickly adapt to demand shifts and disruptions while maintaining efficiency at scale. The emerging model will be "decide centrally, act locally in real time", enabling scale with flexibility.

[131] AI-Driven Demand Forecasting in India's FMCG Supply Chain, Adaglobal
[132] AI -driven demand sensing: Lessons from Unilever and Amazon for the supply chain, AI in the chain, October 2025
[133] How a Strong Supply Chain Drives Efficiency and Growth in Food & Beverage, 3SC, February 2026
[134] How a Strong Supply Chain Drives Efficiency and Growth in Food & Beverage, 3SC, February 2026
[135] How a Strong Supply Chain Drives Efficiency and Growth in Food & Beverage, 3SC, February 2026
[136] Industry Expert Interview, Deloitte, May 2026
[137] Supply Chain AI Statistics: 18+ Statistics You Should Know for 2026, Open Sky Group, April 2026
[138] Industry Expert Interview, Deloitte, May 2026

6.2.2 Technology in new product development

Technology is increasingly embedded across each stage of new product development, transforming innovation from a sequential, intuition-led process into a faster, data-validated workflow.

- **Front-end trend spotting is being digitised:** Advanced analytics platforms take social media sentiment, search trends, regional taste preferences, quick commerce velocity data (top-selling flavours, emerging formats) and analytics from food delivery platforms to identify whitespace with greater confidence than category intuition alone.[139]
- **AI is shaping the pace and economics of product development:** Industry experts report that AI can reduce development cycle time by 50-60 percent[140] and R&D costs by 30-60 percent,[141] allowing R&D teams to prioritise concepts based on observable demand signals rather than category instinct.[142]
- **Test-online-first is becoming default:** An increasing share of new products is now launched first on e-commerce and quick commerce, with industry leaders piloting 60–70 percent of new launches digitally before extending to general or modern trade. This dramatically reduces NPD launch cost relative to the traditional model of mass GT listing combined with TV advertising.[143]

In the future, product innovation will increasingly be driven by predictive consumer intelligence, where AI models simulate product acceptance even before physical trials. This could materially reduce failure rates and shorten innovation cycles, enabling a shift toward precision-led product development.

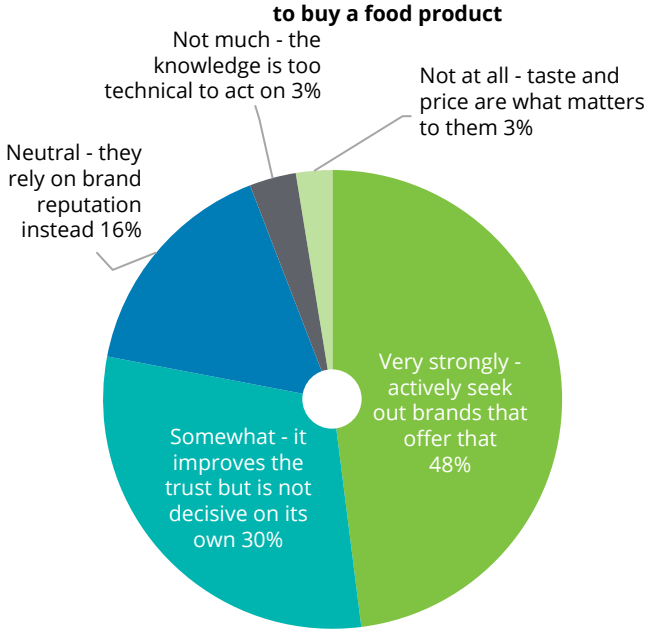
6.2.3 Smart manufacturing and Industry 4.0

Food manufacturing is selectively adopting Industry 4.0 technologies to improve quality, safety, efficiency and regulatory compliance. While the long-term direction of adoption is clear, current implementations remain largely focused on gradual operational improvements rather than large-scale transformation, providing a more balanced perspective for investment planning.

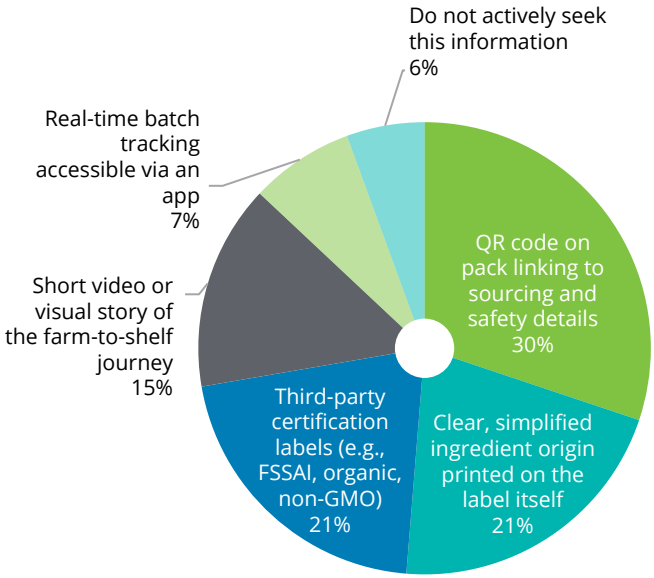
- **AI computer vision is being used for quality control:** Machine-learning-based quality systems are replacing or supplementing manual inspection on production lines, detecting defects, foreign objects, fill-level inconsistency and packaging errors. AI-powered optical sorting enables inspection at throughput speeds beyond human capability.[144]
- **Robotics is improving consistency and safety:** Globally, the food industry is seeing growing adoption of robotics in handling, sorting, packaging and warehouse operations, particularly for repetitive and precision-driven tasks. The global food robotics market is projected to reach US$6.08 billion by 2032.[145] For India, this presents an opportunity to improve operational consistency, strengthen efficiency and gradually reduce dependence on labour-intensive processes as the sector modernises.
- **Blockchain traceability is becoming a core driver of both compliance and consumer trust:** Blockchain-enabled traceability platforms are increasingly being adopted to record batch movements, temperature exposure and supplier transactions across the supply chain. Traceability capabilities have become a market-access requirement rather than a differentiator, particularly under tightening EU and US food safety and due-diligence regulations, while also emerging as a consumer trust lever with 48 percent of the consumers actively seek transparent brands and 30 percent view it as meaningful trust enhancer. Consumers prefer simple accessible formats such as QR codes, clear ingredient-origin labels and certifications over complex tools.[146]

[139] Industry Expert Interview, Deloitte, May 2026
[140] Revolutionizing Food Product Development: Use of AI in Product Formulation, Sensory Prediction & Sustainable Scaling, SAS Publishers, July 2025
[141] Revolutionizing Food Product Development: Use of AI in Product Formulation, Sensory Prediction & Sustainable Scaling, SAS Publishers, July 2025
[142] Industry Expert Interview, Deloitte, May 2026
[143] Industry Expert Interview, Deloitte, May 2026
[144] Industry Expert Interview, Deloitte, May 2026
[145] Nextgen technologies for a progressive food processing sector, Assocham, May 2025
[146] Deloitte consumer survey on food 2026

Supply chain transparency influencing the decision to buy a food product



Preferred format for visibility of product sourcing



Source: Deloitte consumer survey on food 2026 (N=700)

- **IoT-enabled predictive maintenance is enhancing operational reliability:** Smart manufacturing plants instrumented with IoT sensors enable predictive maintenance by detecting equipment irregularities before operational failure occurs to reduce unplanned downtime. Digital twin models allow simulation of process changes without disrupting live operations.

Over time, manufacturing is expected to transition towards fully connected and adaptive production systems, where real-time data across machines, quality systems and supply inputs enables plants to optimise output autonomously. This will improve consistency, reduce waste and enhance resilience to input variability.

6.2.4 AI in marketing, personalisation and channel engagements

Food consumption is frequent, impulse-driven and contextual, making speed and relevance critical for marketing effectiveness. AI-enabled marketing technologies are moving the sector from static, one-size-fits-all campaigns to dynamically generated, hyper-personalised creatives deployed at scale.

- **Hyperlocal personalisation is at scale:** Food delivery and quick-commerce platforms now tailor consumer experiences at a city and even pin-code level. Banners, offers and product recommendations are dynamically adapted based on past orders, dietary preferences and consumption patterns.
- **Content production is being scaled through automation:** Generative AI and automation tools enable rapid creation of multiple versions of marketing content, significantly reducing production timelines. This allows brands to respond more efficiently to demand shifts driven by factors such as weather, festivals and local events.
- **Real-time continuous optimisation and feedback loops are strengthening execution:** Campaign performance is monitored and refined on an ongoing basis, enabling adaptive engagement rather than post-campaign adjustments. This approach is further extending into physical retail, where AI-enabled tools (e.g. shelf benchmarking through image capture) provide real-time visibility into pricing and promotional execution.[147]
- **Generative Engine Optimisation (GEO) and Answer Engine Optimisation (AEO) are emerging as new discovery channels:** As consumers increasingly use AI assistants and large language models for product discovery, recommendations and reviews, brands are expanding their digital strategies beyond traditional search. Ensuring that products and brand information appear clearly and credibly in AI-generated responses is becoming increasingly important, driving greater focus on GEO and AEO.

[147] Industry Expert Interview, Deloitte, May 2026

6.3 Implications of AI adoption

As AI moves from pilot initiatives to broader deployment, companies are beginning to gain a clearer view of its practical cost implications. In some cases, the total cost of implementation can be higher than traditional approaches, making it important to account for these factors during planning.

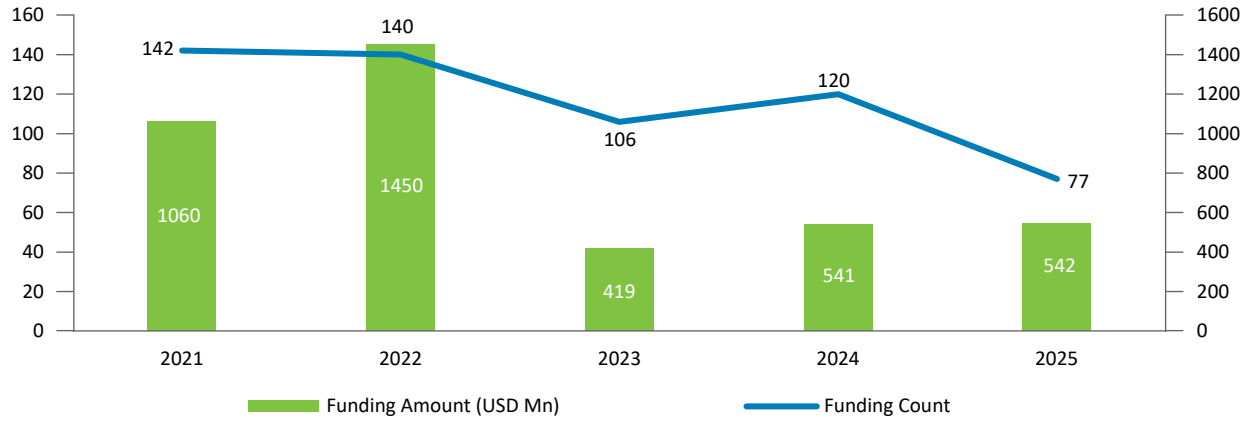
- **Cost structures are more complex than expected:** The overall cost of AI includes not just the technology itself, but also ongoing usage, infrastructure requirements and system integration. Different pricing models, such as subscription-based, usage-based or hybrid, can result in varying cost outcomes.[148]
- **Long-term strategic investment in AI is continuing:** Sector leaders are nonetheless investing, recognising that the technology cost curve will improve, hallucination and reliability issues will reduce and the learning curve cannot be compressed retrospectively. The strategic case is to participate now to be ready when AI economics turn favourable.
- **Early AI adoption is increasingly viewed as strategic:** An emerging view is that companies that do not begin meaningful AI investment in the next 6–12 months will miss the benefit window when the cost curve crosses over. Early investment is being treated as an option premium rather than an immediate return on investment (ROI) calculation.[149]
- **AI is for growth, not just efficiency:** Industry experts says that the larger AI opportunity in food and consumer goods lies on the revenue side, through better demand sensing, frontline execution and personalisation, rather than in cost reduction alone.[150] AI strategy should be designed around top-line effectiveness, not just operational efficiency.

As the technology matures and cost curves improve, AI adoption is expected to shift from selective deployment to enterprise-wide integration, becoming a foundational capability rather than a differentiator. Early adopters will be better positioned to capture both efficiency gains and demand-side growth opportunities as the ecosystem evolves.

6.4 Startup and innovation ecosystem: Food-tech driving disruption and agility

India is now the world's third-largest startup ecosystem,[151] and food-tech is among its most globally significant innovation clusters. Over 3,500 food-tech startups have been tracked in India, of which several have crossed Series A funding and three have reached unicorn status as of December 2025.[152] Indian startups overall raised more than US$12 billion across 993 deals in 2024, a more than 20 percent year-on-year increase, indicating a gradual improvement in funding activity.[153]

Funding in the F&B sector from 2019–25



Source: INC 42 Industry Insights F&B

[148] Industry Expert Interview, Deloitte, May 2026
[149] Industry Expert Interview, Deloitte, May 2026
[150] Industry Expert Interview, Deloitte, May 2026
[151] State Startup Ecosystem Ranking, Startup India, January 2026
[152] Food Tech Startups in India, Tracxn, December 2025
[153] Indian Startup Funding Touches $12 Bn+ In 2024, Stabilises To 2020 Levels, INC 42, December 2024

6.4.1 Emerging categories of startups

The second wave of Indian food-tech is characterised by greater category depth, stronger unit economic discipline and a clearer focus on health, lifestyle and premium occasions, moving well beyond the first wave of delivery and cloud-kitchen models.

- **Alternate proteins:** Targeting flexitarians: Plant-based, fermentation-derived and novel protein startups are responding to structural shifts in nutrition, sustainability awareness and protein affordability. The target consumer is the flexitarians, not the strict vegetarian and early scale is being driven through food service and institutional channels before retail expansion.
- **Health and wellness:** food as preventive care: Functional benefit positioning, protein, immunity, gut health, low sugar, is moving from niche nutrition to mainstream consumption. Subscription models, personalised recommendations and clean-label transparency are improving lifetime value and aligning with premiumisation in urban markets.
- **AgriTech-FoodTech convergence:** Platforms integrating farming, aggregation and downstream food demand are restructuring sourcing, reducing multi-layer intermediary dependence and enabling traceability, quality consistency and price transparency. This is increasingly relevant for export-oriented and premium domestic segments where farm-origin data is a market access requirement.
- **Premium and globally benchmarked food products:** A new set of startups is focused on brining global-quality products, processes and consumer experiences to the Indian market. By investing in superior sourcing, craftsmanship, quality assurance and product innovation, these ventures are catering to the growing segment of consumers seeking premium offerings that meet global standards.

6.4.2 Advantages of the new categories of startups

- **Faster innovation cycles:** New-age FoodTech startups can launch and improve products quickly in response to changing consumer preferences. Their digital-first and flexible business models help them adapt faster to trends such as high-protein, low-sugar and plant-based foods.
- **Vertical integration:** Many startups are integrating sourcing, processing, branding and distribution within a single platform. This improves quality control, supply consistency, traceability and operational efficiency while reducing dependence on intermediaries.
- **Tech-enabled efficiency:** Technology is helping startups improve forecasting, inventory management, delivery operations and customer engagement. Data-driven insights and automation also help reduce wastage, improve unit economics and deliver more personalised consumer experiences.

6.4.3 Ecosystem enablers and the path ahead

India's food-tech and innovation ecosystem is supported by a maturing institutional and policy infrastructure. Continued evolution of these enablers will determine whether the next phase of sector innovation matches the scale of consumer opportunity.

- **IndiaAI Mission:** Priority for food: The INR10,300+ crore IndiaAI Mission[154] explicitly designates agriculture as priority sectors, opening compute access, model development support and dataset infrastructure for sectoral application development.
- **Open Network for Digital Commerce (ONDC):** Democratising access: Launched in 2022, ONDC's food and retail push stalled by late 2024 as subsidies were cut and monthly retail orders fell from ~65 lakh to ~46 lakh,[155] triggering a reset and a renewed attempt to revive growth through fresh incentives. The ONDC is disaggregating platform distribution monopolies, enabling small food brands to access consumers without permanent commission dependency,[156] a structural shift with particular significance for D2C-stage brands and regional specialty producers.
- **Research, R&D and incubation infrastructure:** National Institute of Food Technology Entrepreneurship and Management (NIFTEM), Indian Council of Agricultural Research (ICAR)-affiliated institutions and a growing set of corporate-academic partnerships provide the R&D and incubation backbone for sector-specific startup acceleration. Continued investment in food-specific deep-tech and translational research remains critical for sustained competitiveness.

Looking ahead

The next three to five years will see the most significant convergence of health-tech, food-tech and agri-tech in India's history. Startups that combine genuine health functionality with scalable supply chains and digital consumer engagement and incumbents that successfully integrate startup agility into their operating models, will define the competitive landscape of Indian food through 2030.

[154] Transforming India with AI — IndiaAI Mission, PIB Government of India, October 2025.
[155] Has the ONDC experiment failed?, Finshots, May 2025
[156] ONDC Press Information, PIB Government of India, December 2025.

Chapter 7: Achieving resilience amidst risks and challenges

7.1 Regulatory landscape

India's food processing sector is governed by a multi-layered regulatory framework involving both Central and State authorities. The **FSSAI,** established under the Food Safety and Standards (FSS) Act, 2006,[157] is the apex regulator responsible for setting science-based standards and overseeing the manufacture, storage, distribution, sale and import of food. The **Ministry of Food Processing Industries (MoFPI)** supports sectoral growth through policy, infrastructure, technology adoption, R&D and export promotion.[158]

Additional oversight comes from the **Legal Metrology Department**[159] under the **Ministry of Consumer Affairs,** which enforces the Legal Metrology Act, 2009 and related rules to ensure accurate weights, measures and labelling, while the Central Consumer Protection Authority (CCPA) under the Consumer Protection Act, 2019 safeguards consumer rights and prevents unfair trade practices and misleading advertisements.[160]

Environmental compliance is regulated by the **Central Pollution Control Board (CPCB)**[161] under the Plastic Waste Management Rules, 2016 (as amended), including EPR obligations requiring producers, importers and brand owners to manage post-consumer packaging waste. CPCB sets national standards while State Pollution Control Boards (SPCBs) handle local enforcement.

7.1.1 Regulatory reforms facilitating ease of doing business

Over the past few years, the food processing industry has witnessed a shift in the regulatory and compliance landscape, with the Government increasingly focusing on reducing procedural bottlenecks through landmark structural reforms and measures.

We set out below some of these notable interventions and regulatory developments which have taken place in the last 12 months:

- **Food Safety and Standards (contaminants, toxins and residues) Amendment Regulations, 2026:**[162] FSSAI notified the amendments that come into force from 1 December 2026, with revisions in limits and scope for contaminants such as lead, arsenic, cadmium, aflatoxins and others. The amendments update standards for pulses, oils, seafood and food products, introduce specific limits (e.g. inorganic arsenic in fish oil) and strengthen regulatory controls to ensure food safety and compliance.
- **Food Safety and Standards (labelling and display) First Amendment Regulations, 2026:**[163] FSSAI notified amendments on 24 March 2026, effective from 1 July 2027, to refine and strengthen labelling requirements. The amendments exempt Infant Nutrition products from per serve percent recommended dietary allowances (RDA) and servings per pack declarations and rationalise exemptions for raw, minimally processed single-ingredient foods and specified nutraceutical formats. They also permit omission of logos on small packages (up to 100 sq. cm.), with disclosure on multi-unit packs. Further, the amendments overhaul non-retail labelling provisions by specifying mandatory information, allowing certain disclosures through accompanying documents or electronic means with traceability and requiring clear identification of non-retail containers. They strengthen general labelling norms on prominence and legibility, update fortification labelling and logo provisions, refine warning and declaration requirements and standardise terminology, thereby enhancing clarity and compliance.

[157] https://fssai.gov.in/cms/food-safety-and-standards-act-2006.php
[158] https://mofpi.gov.in/goals-and-roles
[159] https://lm.doca.gov.in/index.html
[160] https://doca.gov.in/ccpa/#:~:text=Previous-,National%20Consumer%20Helpline%20(NCH),Download%20NCH%20APP
[161] https://thc.nic.in/Central%20Governmental%20Rules/Plastic%20Waste%20Management%20Rules,%202016.pdf
[162] https://egazette.gov.in/(S(tpoqzhcoumgnpo0kmw0wzu4h))/ViewPDF.aspx
[163] https://fssai.gov.in/upload/notifications/2026/04/69cca2b3f3ce9Notification%20dt%2024.03.2026_NRC.pdf

- **Food Safety and Standards (licensing and registration of food businesses) Amendment Regulations, 2026:**[164] FSSAI notified amendments on 10 March 2026 to strengthen the licensing and registration framework of food businesses. The amendments expand the definition of petty food business operators, enable instant registration through simplified processes and provide deemed registration for street vendors under the Street Vendors Act. They introduce clearer provisions on validity and suspension of licenses linked to fee payment and returns, alongside a shift towards risk-based inspections and mandatory third-party audits where required.
- **Food Safety and Standards (import) First Amendment Regulations, 2025:**[165] FSSAI notified amendments to streamline and strengthen the import regulatory framework, effective from 1 May 2026. The amendments introduce greater alignment with globally accepted analytical methods by permitting the use of internationally recognised standards where domestic methods are unavailable, while also mandating a defined five-day timeline for laboratory analysis reports.
- **FSSAI Policy on Timeline for Compliance with FSS Regulations (Office Order, 6 January 2026):**[166] On 6 January 2026, FSSAI updated its labelling implementation policy to provide greater regulatory predictability. All changes to labelling and display regulations, as well as updates to labelling provisions in other FSS regulations, will take effect uniformly on 1 July each year, subject to a minimum transition period of 365 days from notification date.
- **Legal Metrology (packaged commodities) Second Amendment Rules, 2026:**[167] The Department of Consumer Affairs notified these rules on 27 April 2026 to further amend the 2011 Rules, introducing a key requirement that, effective 1 July 2027, all e-commerce entities offering imported products for sale must provide a clearly identifiable, searchable and sortable Country of Origin filter in product listings.
- **Plastic Waste Management (Amendment) Rules, 2026:**[168] The Ministry of Environment, Forest and Climate Change notified amendments on 31 March 2026 to the Plastic Waste Management Rules, 2016 by expanding key definitions such as "end-of-life disposal," "plastic waste processors," "reuse," "seller" and "registered environment auditor," and mandating that recycled plastic packaging comply with Indian Standard IS 14534:2023 along with applicable FSSAI labelling requirements for food-contact applications. The amendments designate urban local bodies, local authorities and *panchayats* as enforcement authorities, require constitution of State Level Monitoring Committees and enable the engagement of registered environment auditors, while reinforcing EPR obligations through category-wise targets for recycled content and reuse (with phased increases), permitting carry-forward of unfulfilled 2025–26 targets over three years subject to minimum annual fulfilment, introducing conditional exemptions where restricted under other laws and mandating detailed annual reporting, audit and verification on centralised portals to enhance compliance, traceability and accountability across producers, importers and brand owners.
- **MoHFW Regulatory and Procedural Reforms (aligned with NITI Aayog recommendations):** The Ministry of Health and Family Welfare approved a comprehensive set of reforms[169] to enhance efficiency, transparency and ease of doing business while reinforcing food safety standards, notably introducing perpetual validity for FSSAI licences and registrations, thereby eliminating periodic renewals and reducing compliance burden. The reforms also rationalise turnover thresholds by increasing the basic registration limit from INR12 lakh to INR1.5 crore and expanding State licensing to cover FBOs up to INR50 crore, reserving Central licensing for entities above this threshold, thereby decentralising enforcement and shifting oversight of the majority of FBOs to State authorities.
- **Consumer Protection Digital Reforms (NCH 2.0 and e-Jagriti Platform):** To enhance consumer protection, the Department of Consumer Affairs upgraded the National Consumer Helpline (NCH) with AI-enabled NCH 2.0 offering multilingual assistance, chatbot-supported interactions and expedited grievance resolution. The e-Jagriti

[164] https://fssai.gov.in/upload/notifications/2026/03/69b2a2c804123Notification%20dt%2010.03.2026.pdf
[165] https://fssai.gov.in/upload/notifications/2025/11/690c2be295f55Gazette%20Notification%20dt%2027.10.2025.pdf
[166] https://fssai.gov.in/upload/advisories/2026/01/695cc8cc988f2order%20on%20Decision%20taken%20in%2048th%20Food%20Authority%20meeting.pdf
[167] https://consumeraffairs.gov.in/public/upload/files/2026.4.27%20PCR%202nd%20COO%20from%201.7.2027_1777348487.pdf
[168] https://www.indianchemicalcouncil.com/docs/notifications/271465-Plastic%20Waste%20Management%20(Amendment)%20Rules,%202026.pdf
[169] https://www.pib.gov.in/PressReleasePage.aspx?PRID=2239834&reg=3&lang=2

platform demonstrated enhanced efficiency in consumer redressal during 2025, with disposal rates consistently exceeding new case filings.

7.1.2 Regulatory barriers impacting the food processing sector and suggested recommendations

- **Practicality of baseline references for HFSS and FoPNL**

  FoPNL has become one of the most debated and closely watched regulatory developments in India's food processing industry. The draft regulations first notified by FSSAI in 2018 and later revised in 2022 through the proposed 'Indian Nutrition Rating' framework have gone through multiple rounds of stakeholder consultations, expert reviews and increasing judicial scrutiny. In April 2025,[170] the Supreme Court directed the Government to finalise the FoPNL framework within three months, while subsequent hearings reflected the Court's concern over continued delays. However, FSSAI, in an affidavit submitted to the Supreme Court in early 2026, decided to withdraw its September 2022 draft regulations introducing a star-rating system for packaged foods, citing lack of stakeholder consensus and the need for further scientific evaluation, and thus has initiated fresh research and wider consultations before finalising a front-of-pack nutrition labelling framework.[171]

  With respect to HFSS regulations, while the proposed FSS (labelling and display) Amendment Regulations, 2022[172] are intended to promote healthier food choices and improve transparency for consumers, a key concern for industry lies in the methodology being proposed. Under the draft regulations, nutritional values are required to be displayed per 100 grams of solid products or per 100 millilitres of liquid products. It has been consistently raised by the industry stakeholders that this approach does not reflect actual Indian consumption patterns and therefore may not provide consumers with a realistic basis for evaluating products. It is particularly concerning for categories such as condiments, spices, namkeens, pickles and traditional snacks, where consumption quantities are typically very small, but nutrient density per 100 gram appears disproportionately high. As a result, products that are otherwise consumed in moderation could be unfairly categorised as HFSS, creating the risk of misleading consumers and disproportionately affecting traditional and MSME-driven food categories.

  Recommendation: A more comprehensive definition of HFSS tailored to Indian dietary patterns would be essential. Nutrient thresholds should be calibrated using evidence-based methods aligned with Indian consumption trends and regulatory priorities. Adopting a serving size-based approach, instead of the 100g/100ml benchmark, may better reflect actual eating habits. This shift would ensure that FOPNL and health star ratings meaningfully guide consumer choices while maintaining global comparability.

  This assumes particular importance considering recent developments wherein FSSAI has initiated fresh consultations and research towards finalising a revised framework. Thus, it is critical that any revised regulatory approach is calibrated to the Indian dietary ecosystem, ensuring that classification methodologies are both scientifically robust and practically applicable across diverse product categories, including traditional and MSME-driven segments.

- **Post-expiry food management**

  The management of expired or rejected food has become one of the top regulatory priorities for FSSAI. On 16 December 2024, FSSAI notified an advisory[173] requiring licensed food manufacturers, importers, repackers and relabellers to report data on rejected and expired food products. Further, an advisory was notified in November 2025[174] to State Food Safety Commissioners mandating time-bound, camera-recorded and environmentally safe disposal of seized and expired food products. Collectively, these measures signal a clear shift towards tighter oversight over post expiry food management by the regulators.

  However, despite the regulatory intent, the core issue of the industry remains unaddressed, i.e. the absence of a clear and practical disposal framework. Food businesses are expected to undertake additional reporting obligations, but there is still limited clarity on what can legally and safely be done

[170] https://api.sci.gov.in/supremecourt/2024/23300/23300_2024_11_37_60847_Order_09-Apr-2025.pdf

[171] https://theprint.in/judiciary/fssai-puts-brakes-on-star-rating-of-packaged-food-underlines-need-for-more-research-before-sc/2857081/

[172] https://fssai.gov.in/upload/uploadfiles/files/Draft_Notification_HFSS_20_09_2022.pdf

[173] https://www.fssai.gov.in/upload/advisories/2024/12/6773d3d6a50f3Advisory-expired-rejected%20food.pdf

[174] https://aninews.in/news/national/general-news/fssai-issues-advisory-on-improper-disposal-of-seized-rejected-and-expired-food-items20251104181541/?amp=1



with expired inventory across different scenarios. There is lack of clarity around aspects like whether it can be safely redirected to animal feed post its expiry date and/or best before date, converted to non-food industrial use or whether destruction remains the only permissible route. In the absence of standardised and operationally clear guidelines, the industry remains exposed to the risk of inconsistent enforcement, even as regulatory and compliance expectations continue to increase.

Recommendation: It is recommended that FSSAI develop a comprehensive, tiered decision-making framework that clearly outlines permissible pathways for expired food products based on risk categorisation. This framework may include defined protocols for (i) safe diversion to animal feed where appropriate, (ii) repurposing for non-food industrial applications and (iii) environmentally responsible destruction as a last resort.

Such guidance may be supported by uniform national standards, documentation requirements and traceability mechanisms to ensure consistency in enforcement across jurisdictions. This will reduce regulatory ambiguity, enable responsible waste minimisation and align industry practices with broader sustainability objectives.

- **Implementation of the EPR mandate**

  The EPR framework for plastic packaging has seen significant tightening over the past year, substantially increasing compliance expectations for the food processing industry. The Plastic Waste Management (Amendment) Rules, 2026,[175] released by the Ministry of Environment, Forest and Climate Change (MoEFCC) in March 2026, introduced phased mandatory recycled-content targets across plastic packaging categories, along with traceability requirements such as QR codes and barcodes on packaging. The amendments also provided limited carry-forward flexibility for unmet recycled-content obligations, particularly for food-contact applications.

  For the food processing sector in particular, these obligations create a complex overlap between sustainability mandates and food safety requirements. While EPR regulations push for higher recycled-content usage across plastic packaging categories, FSSAI permits the use of recycled plastics in food-contact packaging only under tightly regulated conditions and for limited applications. In the absence of harmonised guidance and adequate availability of certified food-grade recycled plastic, Food Business Operators (FBOs) face significant operational and compliance uncertainty.

  Recommendation: While the industry fully supports the government's objectives on plastic waste management, meeting EPR mandates remains challenging due to the limited availability and infrastructure for high-quality recycled plastic. To enable effective compliance, a phased implementation approach with gradually increasing recycled content targets is recommended. Without corresponding infrastructure expansion, mandatory recycled-content targets may remain difficult to operationalise at scale. Further, it is recommended that distinct food-contact safety standards for recycled content in packaging should be jointly notified by FSSAI and MoEFCC to address current regulatory ambiguity. Such a comprehensive approach would improve implementation feasibility, strengthen supply-side readiness and ensure that sustainability objectives are advanced without compromising on food safety requirements.

[175] Waste Management (Amendment) Rules, 2026

- **Regulatory alignment and compliance around pesticide residue**

  Pesticide residue regulation continues to remain an important area of concern for the food processing industry, particularly as FSSAI has intensified surveillance and periodic reviews under the FSS (Contaminants, Toxins and Residues) Regulations, 2011. Over the past year, regulatory discussions have increasingly focused on strengthening monitoring mechanisms, improving traceability across agricultural supply chains and aligning India's residue standards more closely with evolving international benchmarks such as Codex standards. At the same time, enforcement scrutiny around pesticide residues in food products has increased, placing greater compliance pressure on food businesses and processors.

  Industry concerns, however, continue to centre on the practical application of MRLs, particularly for processed foods and non-registered or banned pesticides. The industry has consistently argued that residue assessments should be linked to raw agricultural commodities, rather than processed products where concentration levels may vary significantly due to processing methods. The industry also faces challenges with regards to default tolerance limits for non-registered pesticides and the continued applicability of MRLs for pesticides that are no longer approved for use in India.

  Recommendation: To address industry concerns regarding pesticide residues and MRLs, it is recommended that MRL evaluations be based on raw agricultural commodities rather than processed foods. This would provide a more accurate reflection of real-world consumption and reduce variability in interpretation for processed foods, as processing may alter residue levels. In parallel, a periodic review mechanism may be instituted to rationalise legacy MRLs, remove references to obsolete pesticides and align domestic standards with internationally accepted benchmarks where appropriate.

- **Regulatory realignment of nutraceuticals**

  The regulatory framework for nutraceuticals is currently at an inflection point following recommendations of the inter-ministerial committee constituted by FSSAI and CDSCO. It was recommended by the Committee that nutraceuticals carrying Disease Risk Reduction (DRR) claims should fall under CDSCO regulation, while products making only nutritional or health claims would continue under FSSAI oversight. If implemented, this would significantly alter the regulatory landscape by bringing certain nutraceutical products within the ambit of drug-law requirements, including additional approvals and evidence standards.

  This raises significant concerns owing to potential compliance obligations that would arise from the shift. Products currently regulated under the food framework may become subject to clinical trial requirements, WHO-GMP standards and multiple regulatory interfaces, substantially increasing cost and timelines for market access especially for smaller nutraceutical companies. Additionally, the broader nutraceutical framework under the draft FSSAI regulations 2022 and gazette notification dated 23rd December 2016 continue to be implemented through periodic FSSAI directions, while the final regulations are still awaited, leading to continued regulatory uncertainty for the sector.

  Recommendation: It is recommended that any potential regulatory realignment of nutraceuticals be undertaken through a clearly defined, risk-based segmentation framework, ensuring that products with distinct nutritional, health and disease risk reduction claims are appropriately classified without creating overlap between FSSAI and CDSCO jurisdictions. Further, harmonised guidelines on licensing, claims and evidence requirements along with simplified approval pathways (especially for FSMP (Food for Special Medical Purposes) products), should be developed to minimise compliance burden and avoid duplication of regulatory processes.

7.2 Other risks

India's food and consumer goods sector operates within a complex and continuously evolving risk and regulatory environment. It sits at the intersection of agricultural volatility, global commodity pressures, stringent regulations, rising consumer awareness and rapid digital adoption. These risks are often interrelated and can influence one another, requiring careful monitoring and a coordinated industry response.

This section outlines a few critical risk domains that the sector continues to navigate, including **supply chain volatility, packaging, reputational risk, technology and cyber threats and talent.**

7.2.1 Supply chain: Volatility, input cost shocks and geopolitical exposure

India's food sector continues to operate within a supply chain that is structurally sensitive to external factors. Climate variability, input cost volatility and geopolitical disruption are now tightly interlinked and routinely cascade into processing operations, working capital and pricing decisions.

- **Production is fragmented at the source:** Over 85 percent of Indian farmers operate smallholdings of under 2 hectares,[176] resulting in fragmented production that is highly sensitive to monsoon variability, heat stress and extreme weather. Rising temperatures, erratic monsoons, extended dry spells and unseasonal rains directly lower crop yields by inducing heat stress, disrupting flowering and pollination and damaging grains at maturity. Climate shocks now affect more than just farms, it disrupts interstate movements, creates logistics congestion and fluctuates market prices.
- **Price-led rather than shortage-led supply pressures:** Recent cycles have shown that the dominant supply-side risk is volatility in input cost rather than physical shortage. Crude-linked packaging materials, freight rates and edible oil markets each carry independent volatility cycles, yet compound when they move together, directly impacting processing economics and working capital requirements.
- **Import dependence adding more to exposure:** India imports 55–60 percent of its edible oil requirement and 10–15 percent of pulses,[177] making domestic availability and inflation vulnerable to global commodity cycles. For example, a disruption in West Asia can lead to fluctuations in global prices, affecting import-dependent commodities even when domestic production is stable.
- **Geopolitical disruptions are affecting operations:** Recent global developments are having a more visible impact on day-to-day operations. Trade measures such as US tariffs are influencing export-oriented businesses, while the Iran conflict is disrupting LPG supply and threatening availability of key inputs like plastics, packaging and closures, compressing disruption cycles and driving volatility in logistics and input costs.[178]
- **Inconsistent export policy can affect planning certainty:** Ad hoc export restrictions on agricultural commodities, including periodic curbs on wheat, atta, rice and sugar can create planning uncertainty for companies committed to international markets. Even when India's global export share in a category is small, abrupt policy changes damage brand equity and long-term positioning in target geographies, while allowing competing countries to step in, capture these opportunities and build long-term relationships that can take years for Indian players to regain.[179]
- **Infrastructure and cold chain gaps remain:** Despite having over 8,689 cold storage facilities with a combined capacity of ~39.6 million MT (as of August 2024[180]), India's cold chain ecosystem remains inadequate relative to demand, with cold-chain gaps representing one of several factors contributing to total annual post-harvest losses of ~INR92,651 crore (~US$10.8 billion[181]), particularly in perishables like fruits, vegetables and dairy; limited capacity, fragmented logistics and weak market linkages continue to drive inefficiencies, underscoring the need for diversified sourcing, stronger physical and digital infrastructure, real-time supply chain visibility and forward-contracting capabilities.

Brands are adopting integrated manufacturing and sourcing strategies, including multi-category in-house factories and long-term forward procurement contracts, to mitigate input cost volatility. At the same time, the use of AI-driven logistics and demand forecasting is enhancing supply chain agility, helping companies better navigate disruptions.

7.2.2 Packaging: Cost crisis and sustainability transition

Packaging has become a significant source of risk, driven simultaneously by input cost volatility and an accelerating sustainability transition. Compliance complexity has now overlaid the cost challenge, particularly where state-level frameworks duplicate central regulation.

- **Crude-linked polymer volatility:** India's dependence on crude-linked polymers means packaging costs move sharply with global oil

[176] Improving Condition of Small and Marginal Farmers, PIB GOV, March 2023
[177] India food secure overall but exposed to imported inflation in oils, pulses amid West Asia tensions: Deloitte; ANI, April 2026
[178] Industry Expert Interview, Deloitte, May 2026
[179] Industry Expert Interview, Deloitte, May 2026
[180] From Farms to Fridges: How Cold Chain Infrastructure is Transforming India's Agriculture, IBEF, November 2025
[181] From Farms to Fridges: How Cold Chain Infrastructure is Transforming India's Agriculture, IBEF, November 2025

markets. Policy measures aimed at strengthening LPG availability have influenced the allocation of propane and butane, reducing their availability for petrochemical use. This has contributed to feedstock tightness and an estimated 30–40 percent reduction in polypropylene (PP)/ polyethylene (PE) production.[182] Consequently, the market has experienced high-density polyethylene (HDPE) and polypropylene (PP) supply constraints, price increases in the range of 50–70 percent[183] and periodic plant shutdowns,[184] collectively placing significant pressure on industry margins. Recent disruptions have forced companies from bulk procurement to smaller, higher-cost orders, disrupting working capital cycles and squeezing margins, particularly for MSMEs without scale-based procurement leverage.

- **Recycled content mandates rising:** The April 2025 mandate requiring 30 percent recycled polyethylene terephthalate (PET) content, introduced with limited transition time and the escalating recycled-content trajectory toward 60 percent by 2028–29 have raised both immediate compliance costs and long-term capex exposure for the industry.

Mandatory use of recycled plastics in packaging

Category	2025–26	2026–27	2027–28	2028 –29 and onwards
Category I	30%	40%	50%	60%
Category II	10%	10%	20%	20%
Category III	5%	5%	10%	10%

Source: Ministry of Environment, Forest & Climate Change, The Gazette of India - June 2025

For plastic packaging used in food-related applications, any shortfall in recycled plastic usage in 2025–26 may be carried forward for up to three years from 2026–27 onwards, over and above future targets.[185]

- **Sustainability cost cannot pass through:** While ESG performance is increasingly material to investors and global market access, the Indian mass consumer is not yet willing to pay a premium for sustainable packaging. Initiatives that are commercially actionable today are those that are cost-neutral or cost-saving, such as renewable energy, water conservation, packaging weight reduction. Product-level sustainability transitions are still dependent on further reductions in technology costs before they can be adopted widely at mass-market price points.[186]

Brands are increasingly leveraging dynamic pricing strategies, particularly small price increases, slightly reducing pack sizes and adjusting pack formats to manage rising packaging input costs and protect margins. They are also managing risk by locking in material prices (hedging) and sourcing materials from multiple locations to avoid supply shocks. At the same time, there is a growing shift towards more eco-friendly packaging (recyclable, compostable or biodegradable) to reduce dependency on plastics, alongside lightweighting technologies that uses less material and improve cost efficiency.

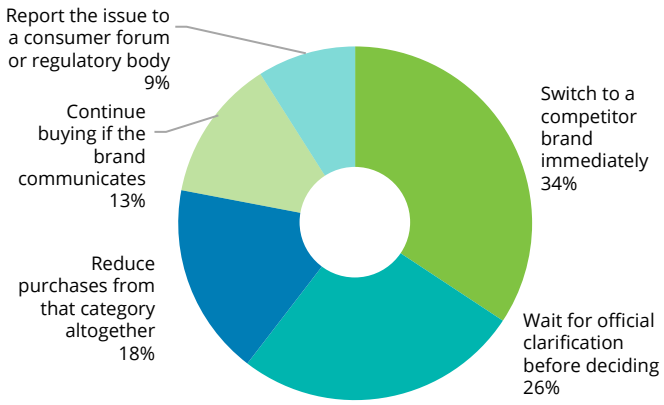
[182] Indian petrochemical producers face raw material shortages amid LPG mandate, S&P Global, March 2026
[183] Polymer shortage set to raise prices of packaged milk, water and medicines, The Times of India, March 2026
[184] INSIGHT: Gas shortage hits India petrochemical output as Iran war rages, ICIS, March 2026
[185] Ministry of Environment, Forest & Climate Change, The Gazette of India - June 2025
[186] Industry Expert Interview, Deloitte, May 2026

7.2.3 Reputational volatility and trust erosion

Social-media driven de-influencing has emerged as a significant reputational and commercial risk. In a high-trust category like food, consumer sentiment is reactive - and unverified content can shape public perception before facts or expert clarification enter the discourse. Survey insights show that a significant share of consumers respond strongly to controversies, 34 percent switch brands immediately, 26 percent wait for clarification and 18 percent reduce category consumption, while only a small proportion continues purchasing if the brand communicates effectively or escalates the issue further. This highlights that even short-term negative sentiment can translate into tangible demand impact, making timely, transparent communication critical.

- **Trust drives purchase decisions:** Food safety is a primary determinant of brand choice, and consumers switch quickly when credibility weakens. A single viral allegation can erode years of brand-building before the underlying claim is examined or contextualised.
- **Misinformation outpaces clarification:** Sensational food safety claims travel materially faster than technical brand or regulatory clarifications, driven by emotional rather than analytical engagement. Consumer misunderstanding of basic concepts such as the distinction between trace detection and permissible regulatory limits amplifies fear-based narratives.
- **D2C brands disproportionately exposed:** Digital-first and D2C food brands lack the long-standing reputational buffer of legacy FMCG players. Their credibility is built almost entirely online, making them more vulnerable to a single viral video or post that can trigger category-level panic across the consumer base.
- **Regulatory accountability tightening:** The 2023 guidelines from the Ministry of Consumer Affairs was issued in consultation with Food Safety and Standards Authority of India (FSSAI) Advertising Standards Council of India (ASCI), mandate clear disclosures and disclaimers when celebrities, social media influencers and virtual influencers promote food, nutraceuticals or wellness products.[187] The June 2024 Supreme Court direction further strengthened pre-release self-declaration requirements for advertisers.[188]
- **Resilience requires proactive transparency:** Reactive crisis management is no longer sufficient.

Reaction of consumers when there is a controversy related to food safety or quality



Source: Deloitte consumer survey on food 2026 (N=700)

Required disciplines include routine third-party testing, simplified consumer communication on testing methodology, responsible creator partnerships grounded in verification and faster authoritative regulatory communication during viral food-safety scares.

Brands are focusing on taste-first reformulation and test-online-first product development to ensure consumer acceptance before scaling. This is contemplated by transparent and honest labelling practices, helping build consumer trust.

7.2.4 Technology and cyber risk

India's food processing sector is digitalising rapidly across ERP, supply chain platforms, IoT-enabled manufacturing and AI-driven decision support. While this transformation strengthens efficiency and traceability, it has expanded the cyber-attack surface and introduced new categories of operational risk. In parallel, the Government of India is strengthening cyber resilience across the agri food and food processing ecosystem through Digital India–led platforms and CERT In oversight, including sectoral cybersecurity advisories, 24×7 incident response support and nationwide cyber readiness drills covering agriculture, food safety and allied digital infrastructure.[189]

- **Operational technology systems are becoming more exposed:** OT systems, cold chains and logistics platforms which are historically low-tech, are now meaningful cyber-attack targets.

[187] Centre releases additional guidelines for Health and Wellness Celebrities, Influencers and Virtual Influencers, PIB GOV, August 2023
[188] Supreme Court Mandates Self-Declaration by Advertisers/ Advertising Agencies Before Releasing Advertisements, PIB GOV, June 2024
[189] Safeguarding India's Digital Landscape - Key Government's Initiatives to Enhance Cybersecurity Awareness; July 2024



Disruptions caused by ransomware, sensor manipulation, or data integrity breaches can directly impact production continuity, product quality and consumer trust.

- **Cyber risk is becoming linked to product integrity:** Cybersecurity and food safety are now structurally linked. Compromised batch records manipulated cold chain data, or breached traceability systems can have direct public health and recall implications, moving cybersecurity from an IT cost centre to a board-level food safety concern.
- **AI cost reality often understated:** While AI applications in demand forecasting, logistics optimisation and shelf benchmarking are progressing rapidly, the realised cost of AI deployment, including token consumption and infrastructure upgrades frequently exceeds the legacy human or rule-based alternative. The strategic case for early investment is real, but companies should avoid budgeting AI initiatives as immediate cost-out programmes.[190]
- **Digital growth outpacing security:** Without parallel investment in cyber maturity, digital transformation risks creating systemic vulnerabilities across the value chain. Required disciplines include supplier verification, layered access controls, structured incident response planning, regular cyber emergency drills and adoption of sector-specific cybersecurity benchmarks.

7.2.5 Talent: An emerging structural risk

Talent has moved from an operational HR concern to a structural sector risk. While it does not yet feature prominently in industry risk frameworks, it shapes the executability of every other strategy, from rural distribution expansion to AI-enabled transformation.

- **Sectoral attractiveness has moderated:** While FMCG has traditionally been a preferred sector for management talent, it is now facing increasing competition from technology, financial services and consulting. This shift reflects not only differences in compensation, but also evolving perceptions around career growth, role relevance and long-term opportunities.[191]
- **Field roles are increasingly getting rejections:** Management trainees increasingly resist non-metro field assignments including in tier-2 and tier-3 markets that drive the sector's next phase of volume growth. The sales force pipeline, on which distribution depth depends, is weakening at the base. Frontline talent shortages directly affect execution quality, retail coverage and the responsiveness of channel architecture.[192]
- **Multi-level structural challenge:** The challenge extends beyond entry-level field roles to mid- and senior-level positions. Aspirations, working models and career expectations of the next generation differ fundamentally from the traditional FMCG career arc, requiring deep redesign of role definitions, location flexibility and progression frameworks.
- **Implications for execution capability:** As India's food sector pursues rural penetration, premiumisation, exports and AI-enabled operations simultaneously, talent constraints become the binding limit on strategic ambition. Companies that fail to reimagine the FMCG career proposition risk a structural disadvantage in precisely the markets and capabilities where future growth will be won.

[190] Industry Expert Interview, Deloitte, May 2026
[191] Industry Expert Interview, Deloitte, May 2026
[192] Industry Expert Interview, Deloitte, May 2026

	Talent dimension	India FMCG sales workforce situation[193,194]
	Frontline retention	High instability in core execution roles, with 25–35 percent annual attrition across territory, distributor and retail-facing positions
	Replacement driven hiring pattern	Sales roles account for ~one third of all replacement hiring, indicating hiring is largely driven by backfilling rather than expansion
	Ramp up and productivity	New sales hires require 3–6 months to achieve full territory familiarity, distributor confidence and execution effectiveness
	Revenue impact	Frequent vacancies and territory disruption expose 10–15 percent of potential territory revenue to leakage or underperformance
	Location concentration	More than 60 percent of sales hiring demand originates from Tier 2, Tier 3 and rural growth markets
	Local capability	Sales success shows high reliance on regional familiarity, language fluency and long standing local relationships
	Early performance	30–40 percent of new hires fail to meet performance benchmarks within the first 12 months
	Campus hiring focus	Premier campus hiring primarily reserved for leadership, management trainee, digital and Go-To-Market (GTM) strategy roles
	Field role preference	Declining willingness among management trainees to accept non metro, field based sales assignments
	Workforce diversity	Women represent only ~12 percent of the FMCG workforce, indicating shallow diversity penetration
	Changing expectations	Traditional FMCG roles show low alignment with Gen Z priorities around flexibility, autonomy and purpose
	External competition	Gig, warehouse and quick commerce roles offer 10–15 percent higher pay plus flexibility, drawing talent away from FMCG sales

[193] Why FMCG Sales Attrition Is Disrupting FMCG Sales Hiring and Growth Targets?, taggd, March 2026

[194] India Decoding Jobs Report 2026

Chapter 8: Way forward: Stepping up to build a winning strategy

India's food sector is entering a defining phase. A young and aspiring consumer base, rising disposable incomes, accelerating digital adoption, deepening corporate capability and growing global interest in Indian food are converging to create one of the most favourable operating environments the sector has experienced. The opportunity, however, is unlikely to convert on its own. Capturing it at scale will require companies and the ecosystem to step up in parallel across several dimensions, such as portfolio strategy, operating model, technology, exports and the intangible drivers of long-term competitive advantage. Government, industry bodies and ecosystem partners could equally play an important role in shaping a supportive environment for growth. The themes outlined below indicate where and how the next phase of value creation can be concentrated.

From scale-led volume growth to capability-led value growth

The next decade of growth is unlikely to be won on scale alone. Companies could focus more deliberately on rebalancing their portfolios towards branded, value-added and premium categories, where price realisation, margin structure and consumer stickiness are materially stronger.

- Establish separate operating structures for value-added and premium portfolios, with distinct P&Ls, innovation pipelines and capital allocation cadences, rather than blending them into existing category structures.
- Set long investment horizons for brand-building and R&D, accepting longer payback periods and the possibility of near-term volume trade-offs as part of the migration to higher-margin formats.
- Evaluate M&A as a route to capability particularly where building proprietary formulations, food science depth or brand equity from scratch would take too long relative to market opportunity.
- Ring-fence innovation budgets from quarterly performance pressures by tying them to a multi-year product roadmap with defined stage gates rather than year-on-year justification.

Designing portfolios for evolving consumers

The Indian consumer is unlikely to remain a single homogeneous proposition. Within the same household, value-conscious purchases now sit alongside premium indulgences and routine replenishment coexists with impulsive experimentation. Companies may benefit from organising their portfolios around occasions, intents and channels rather than categories alone.

- Move from annual to quarterly planning cycles with smaller, cross-functional teams aligned to specific channels and occasions, empowered to adjust assortment, pack formats and pricing in near real-time.
- Treat test-and-learn as an organisational capability, not a one-off exercise, with defined processes for rapid prototyping, early consumer reads and fast scale-up or kill decisions.
- Build distinct assortments by channel with pack sizes, pricing tiers and SKU depth calibrated to the specific economics and consumer behaviour of quick commerce, modern trade, e-commerce and general trade.
- Revisit the mid-range portfolio evaluate whether a mix of mass-market and premium products can perform better than products positioned in the middle.

Building resilience into the operating model

Climate variability, geopolitical disruption, freight volatility and policy uncertainty are no longer episodic events; they have become structural features of the operating environment. Companies may need to redesign their sourcing, manufacturing and distribution networks to be more adaptable, by diversifying procurement geographies, planning for multiple scenarios, building real-time visibility across the supply chain and working more closely with farmers, suppliers and logistics partners.

- Embed scenario planning into routine business reviews, treating supply chain risk assessment as part of operational governance rather than as an annual or crisis-triggered exercise.
- Evaluate suppliers and distribution routes for optionality, not just cost, building parallel sourcing options and alternate logistics corridors into network design from the outset.
- Sequence cold chain and traceability investments with specific category growth plans, so infrastructure spending is linked to business demand and returns.

- Extend farmer and supplier collaboration beyond procurement by jointly planning for yield, quality and climate resilience to reduce supply-side variability

From digital transformation to decision transformation

The largest near-term opportunity from technology may lie less in deploying more tools and more in using existing capability to make sharper decisions at speed.

- Start with a small number of high-value decisions (demand forecasting, route optimisation, shelf benchmarking, predictive maintenance) and build credibility through visible early wins before expanding scope.
- Pair every technology rollout with change management, frontline retraining and clear decision ownership, since the value of AI-led tools depends on whether operating teams act on the outputs.
- Build governance frameworks early, covering data quality, model accountability and responsible AI use, as these are significantly harder and more costly to retrofit once deployments reach scale.

Building export capability

Despite strong production capabilities, India captures only a limited share of export value, with most gains still being captured by processors and brand owners in destination markets. Closing this gap may require a steady shift from raw and minimally processed exports towards branded, value-added and proprietary formats.

- Prioritise depth over breadth by concentrating initial resources on two or three markets where product-market fit is strong, rather than spreading across geographies before establishing a credible base.
- Build brand presence for mainstream consumers, not just the Indian diaspora, by investing in local taste adaptation, origin storytelling and sustained in-market brand-building in priority destinations.
- Set up exports as a distinct business unit with its own leadership, P&L, talent and metrics, clearly separated from the domestic organisation to avoid resource competition and misaligned incentives.
- Invest early in compliance infrastructure, including MRL alignment, traceability systems, accredited testing and export-ready packaging, as these are often the binding constraints on market entry timelines.

Investing in trust and talent

Trust and talent are emerging as key competitive differentiators and are most effective when managed as core business priorities instead of standalone functional programmes.

- Integrate trust into core brand governance with regular independent product testing, clear consumer communication protocols and structured oversight of influencer partnerships, rather than managing it reactively.
- Redesign the food sector career proposition end-to-end, including entry pathways built with academic and skilling partners, rethought location and role flexibility and structured development tracks for digital and R&D roles.
- Put talent and workforce diversity metrics on the management dashboard, alongside commercial and operational KPIs, to signal leadership-level ownership rather than delegating them to HR review cycles.

Embedding sustainability as a cost and competitiveness lever

Sustainability is gradually evolving from a compliance and reporting obligation into a structural cost and competitiveness lever. Rising recycled-content mandates, packaging regulation, water and energy intensity expectations and the carbon-related disclosure requirements of global buyers are reshaping the economics of production.

- Prioritise high-return operational interventions first, such as post-harvest loss reduction, packaging lightweighting, energy efficiency and water reuse, which tend to deliver both cost savings and sustainability progress simultaneously.
- Integrate sustainability metrics into operational scorecards, placing energy, water and waste KPIs in the same reviews as yield, cost and quality rather than in a separate ESG dashboard.
- Create a shared scorecard between operations and sustainability teams to align incentives and avoid the fragmentation that occurs when the two functions run parallel, often competing, agendas.

Strengthening public–private collaboration

For public-private collaboration to move from dialogue to outcomes, it needs to be organised around specific problems, accountable owners and trackable milestones.

- Move from broad thematic engagement to time-bound working groups with defined objectives, clear owners on both the industry and government sides and progress milestones that can be reviewed at regular intervals.
- Set up focused workstreams for priority issues, such as packaging regulation, MRL
- Harmonisation, cold chain corridors and skilling, rather than addressing them all under a single forum agenda.
- Advocate for stable, predictable policy frameworks on exports, taxation and investment incentives, as policy uncertainty tends to dampen private capital deployment even when the underlying economics are attractive.

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