



INNOVATING CPG WITH ANALYTICS AND AI

Abstract

Large consumer packaging goods (CPG) firms find it difficult to create successful and sustained new product lines due to short-lived consumer trends, high costs of product development, and the risks of low customer acceptance. This paper details how digital analytics and AI can be used to address the challenges posed by these changing market dynamics to make product innovation successful.



A changed marketplace

There are about 83.1 million millennials in the US population who form a key customer segment for CPG¹. These millennials tend to spend on quality yet differentiated products that can be flaunted over social media. They also frequently share their new product

experiences through user generated content such as reviews and usage videos, enhancing these products' digital discoverability on social media.

However, millennials are also significantly less brand loyal. With fickle brand preferences, even small differentiations

by competing new brands or products are sufficient to make them switch. Thus, firms are compelled into frequent new product launches with progressively shortening product lifecycles making the goal of sustained and successful product lines ever more difficult.

The high stakes of success

Because of constantly having to launch new products, CPG firms face several challenges (as detailed below). In other words, the stakes for success are always high.

- **Low customer acceptance:** According to Nielsen, over 30,000 new CPG products are launched every year but 70% of those products decline in market²
- **High launch cost:** As per IRI, the average cost of a new product launch for the average CPG company in 2012 was \$71 million³. Considering a 4% year-on-year inflation, current costs can be approximated at over \$98 million.
- **Inability to leverage emerging digital data sources:** Today, traditional data sources such as CRM, market research, or customer service are supplemented with customer/ prospect interaction data from web and social media platforms. A wealth of behavioral information is also generated by digital selling and customer care channels, which CPG firms are unable to fully leverage
- **Performance monitoring:** CPG firms still use archaic measures to monitor the performance of their new product launches over ecommerce and social media channels

Firms thus mostly opt for packaging or composition refinements rather than spending on developing a completely new product

- **High launch lead time:** It takes an average CPG company around 6-9 months to develop and launch a new product
- **Customer acceptance risk:** CPG firms lack standard risk assessment techniques towards need sensing, market acceptance likelihood, impact of new product on overall brand equity, inter-category cannibalization, and impact on competition

¹ Forbes: <https://www.forbes.com/sites/forbesbooksauthors/2019/05/01/millennial-spending-habits-and-why-they-buy/?sh=27c17a41740b>

² Nielsen: Nielsen's Top 25 U.S. Breakthrough Innovations (2019)


³ Forbes Article - New Products: More Costly and More Important

The need for analytics and artificial intelligence

New product development aims at identifying and leveraging market opportunities and latent customer needs while driving overall revenue and profitability. However, most large, established CPG companies are slow to innovate. On average, they spend six times more on marketing and advertising than they do on R&D. Thus, their development focus remains on their popular products even while customers move on to innovative products trending on ecommerce platforms, for e.g., pickle flavored lip balms or waterproof eyebrow liners.

The key factors contributing to the success of these products are a detailed understanding of customer needs, experience triggers, and purchase behavior. CPG companies can tap into the minds of millions of such potential customers via their textual posts on social media and online customer review platforms. The idea is also to enhance the overall digital quotient and drive the company's journey towards a live enterprise, where the firms can sense, respond, and evolve to changing situations, just like a living organism.

These posts which reflect the opinions and beliefs of millions of users and in general not prone to be biased unlike data from formal study or focus groups, nor is studying them likely to be as expensive. Using digital analytics and AI on social media and web data while also leveraging traditional data, R&D and marketing teams will be able to assess all possible risks relating to new product launches as depicted below.



Techniques:


- Text mining
- Theme identification
- Demand forecasting
- Product-wise sentiment driver analysis

Unearth insights related to:

- Latent customer needs
- Desired product traits
- Demand

Evaluate new ideas & product traits within company constraints related to:

- Budget on hand
- Suppliers
- Existing distribution channel capabilities etc.



- 1. Category-wise sales analysis:** This is the starting point for a decision to go for new product/s and is performed by the CPG marketing team to point-out categories witnessing below-target sales value and volume
- 2. Product lifecycle (PLC) analysis:** Underperforming categories are further probed at product level by means of PLC analysis to identify products with continuous declining sales value or volume trend during the last 6-12 months, across a majority of markets or key markets
- 3. Idea generation:** Post the final decision to launch a new product, analysis of social media and other digital channels will help identify latent needs and formalize multiple new product ideas
- 4. Product design and development:** Marketing and R&D teams jointly screen individual ideas with prioritized ideas transformed into new product design, a list of features, and a development plan
- 5. Product testing:** Before final product launch, marketing teams reveal a prototype across sample ecommerce partners. This will then be refined in terms of pricing, traits, and experience-level based on the customer response and online engagement behavior
- 6. Product launch:** The company launches the product across all major ecommerce partners
- 7. Post-launch monitoring:** The performance of the new product performance is monitored in terms of financial, social media, campaign, and customer growth metrics



Mitigating the risks of a new launch

CPG firms can optimize their critical risks by embedding several digital analytics and AI techniques across new product launch process activities. These are indicated in detail below.

Activity	Digital Analytics and AI Techniques
Product replacement or modification decision	<ul style="list-style-type: none"> Product-wise profitability modelling using past social media and web presence, online campaign investment, competitor product social presence, online and offline channel performance, etc. Sentiment analysis of owned and competitor products based on social posts and web reviews Sentiment analysis of past modifications of owned and competitor products
Idea generation, hypothesis formation and assessment	<ul style="list-style-type: none"> Social media and web textual posts mining and theme classification to identify latent needs of potential CPG customers and desired traits in products Classification of online CPG customers to identify target segments in terms of willingness to purchase innovative CPG products Idea matching using neural network and deep learning techniques, to identify any competitor products with similar value proposition and traits Idea innovativeness scoring considering extent of unique product traits, extent of latent need fulfillment, target segment count, feasibility analysis based on internal and market constraints to prioritize ideas for design and development
Product design and development	<ul style="list-style-type: none"> Neural network and deep learning techniques to identify similar products (owned and competition) Overall demand estimation modelling considering social and web users' opinions and sentiments towards specific product traits (color, package, experience etc.) to forecast likely demand Text mining and sentiment analysis of existing products to identify lacking/ unfavorable traits and assess replacement likelihood to estimate likely impact on other products within the category Price sensitivity analysis based on engagement towards price reduction/ discount related social media and web campaigns of similar products to decide the pricing strategy Social and web scraping for dynamic pricing data extraction of similar products and price optimization
Pre-launch product testing	<ul style="list-style-type: none"> "Geo-Market-Ecommerce partner" wise analysis of digital sales, customer count, customer type, engagement analysis to estimate early adopter count and final launch price Text mining and sentiment analysis of new product reviews from sample ecommerce partners to identify platforms for product testing Clickstream analysis of new product features such as text, videos, photos, and relevant online content, to identify product traits to be refined Price optimization for individual ecommerce partners
Product launch	<ul style="list-style-type: none"> Online campaign designing and planning for strategy across channels Online content marketing (e.g., awareness, launch, post-launch) Prediction of online campaign impact on e.g., digital sales uplift, social engagement, social user base
Post-launch monitoring	<ul style="list-style-type: none"> New product digital sales and profitability driver analysis to monitor product performance New product impact/ cannibalization analysis Social analytics of social media posts, engagement, follower trend, sentiment analysis, and text mining to monitor customer response Social campaign performance analysis Analysis of impact of new product on competition social presence

Towards less risky product innovation

As an increasing number of CPG firms are discovering, the use of analytics and AI greatly increases the success rate for new products, reduces rework ideation and development efforts, and as a result, lowers product development and launch costs, and further and drive hyper productivity across the organization.

Towards these benefits, firms need to augment their marketing and R&D teams with a centralized new product development analytics team having the requisite experience with digital analytics and AI tools and techniques. This can then facilitate the standardization of processes for new product development and launch by developing activity-wise risk assessment accelerators and ensure the coordination necessary among relevant business stakeholders. Indisputably, greater product innovation depends on this.



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Romi Malik is Digital Analytics Practice Lead at Infosys BPM digital transformation services, and is responsible for designing, developing, and implementing digital analytics solutions across several industries (telecom, retail, travel, entertainment, and insurance). He also actively participates in digital solution development workshops with clients. Romi is currently managing digital analytics team at Infosys BPM, and ensures delivery of high value solutions around digital and customer analytics. He has more than 17 years of experience overall across India, US, and Europe.

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An ex-marketer, Debojyoti has more than 2 decades of experience across Sales, Marketing, and ITES Solutions. He is a Physics Hons. from Presidency College, Calcutta, and an MBA from the University of Calcutta.

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