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Tech Trends 2017: A consumer products perspective

We live in an age of disruption. Small, nimble organizations are challenging major consumer products players across their brand portfolios, and industry behemoths are struggling to keep pace[1]. Consumer products companies can no longer continue with the status quo; they must evolve and adapt. Organizations who embrace change and innovate are reaping the benefits, those who don't are losing their foothold with 90% of the top 100 consumer brands losing market share[2].

How do the other 10% maintain the strength of their market position? By adapting to embrace disruption and stave off would be competitors through their own evolution. Deloitte' center for the edge has identified five catalysts that drive disruption: the economy, enabling technology, platforms, consumer mindsets and public policy[3]. When viewed independently, these five catalysts are not new areas of focus for consumer products. *In fact, all five were referenced in our industry assessment in Tech Trends 2016: a consumer products perspective —Innovation in the digital era*[4]. What has evolved, however, is our perspective on the ways to help future-proof the organization by preparing for and even embracing disruption. One way to do this is to embrace the Kinetic Enterprise.

Kinetic (adj.) of or relating to the motion of material bodies and the forces and energy associated therewith. Active. Lively. Dynamic, energizing[5].

The Kinetic Enterprise

The first known use of the word 'kinetic' was in 1864: when horse and buggy was the dominant mode of transportation, and branding was nascent, at best, during the 'production' era where mass production was rapidly expanding the availability of products and options in the marketplace[6]. This was a time where cultural and technological change brought new challenges and opportunities, creating new products and markets. Given the current state of technological, consumer and cultural change, it is fitting that this word has reemerged to describe the next evolution of business.

The **kinetic Enterprise** describes companies that are developing the dexterity and vision required not only to overcome operational inertia, but to thrive in a business environment that is, and will remain, in flux[7]. These organizations are not only embracing the multitude of technological and operational changes, but rewriting their very DNA to become more agile, flexible and adaptive.

The Kinetic Consumer Products Organization

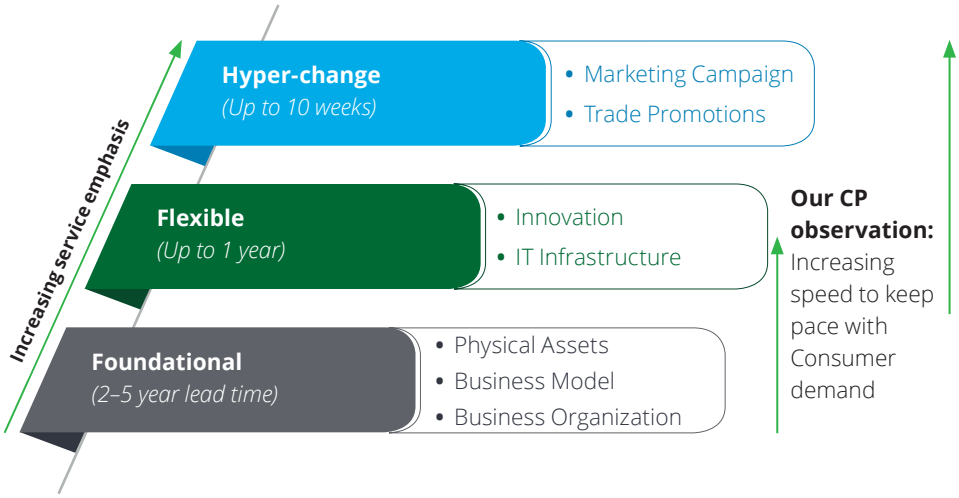
For Consumer Products companies, the definition of the kinetic Enterprise is very much aligned with the speed of Consumer Demand. When opportunities are so dynamic—often with a lifespan as fleeting as a social media trend—CP companies cannot afford to take months to respond. As a result, we are witnessing an active transition from foundational (2-5 years lead time) to flexible capabilities (up to 1 year lead time) and flexible to hype-change capabilities (up to 10 weeks lead time).

To respond to this pace, we view the Kinetic CP Enterprise as virtual ecosystem of services that extend beyond the walls of the organization. This paradigm shift reimagines the organization not as functional silos and a collection of distinct technology solutions, but rather refocuses on developing the net new capabilities required to be able to orchestrate a collection of services to deliver these functions.

The Kinetic Enterprise perspective allows an organization to access skillsets and technologies and harness brainpower that the organization may not have internally or choose not to maintain as a core competency. The capabilities required to succeed in this environment are flexible, dynamic...and evolving.

Enabling the Kinetic Enterprise

To enable the kinetic enterprise, consumer products companies will need to build new muscles (while continuing to feed their core), and re-wire the 'nerves' that orchestrate movement in those muscles.

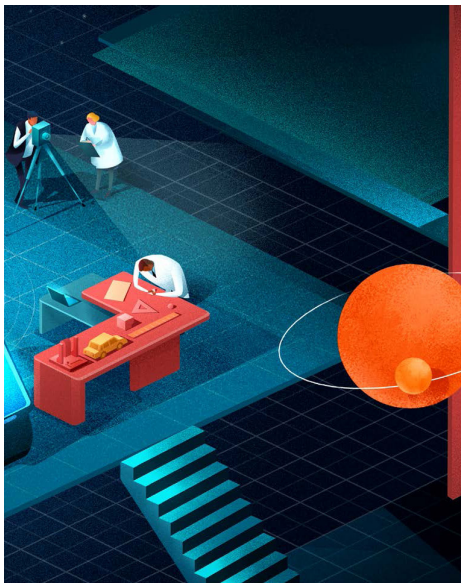


- **Build Core Emerging Capabilities**
  - Consumer products companies should develop the ability to orchestrate an ecosystem of players; not just existing external partners and advisors, but new technologies and providers, on-demand talent pools and resources and flexible, shared supply chain networks. These organizations should embrace data agility and analytics that will evolve, adjust and learn. And the kinetic consumer products enterprise should persistently pursue innovation and evolution in the pervasive atmosphere of zero based budgeting.

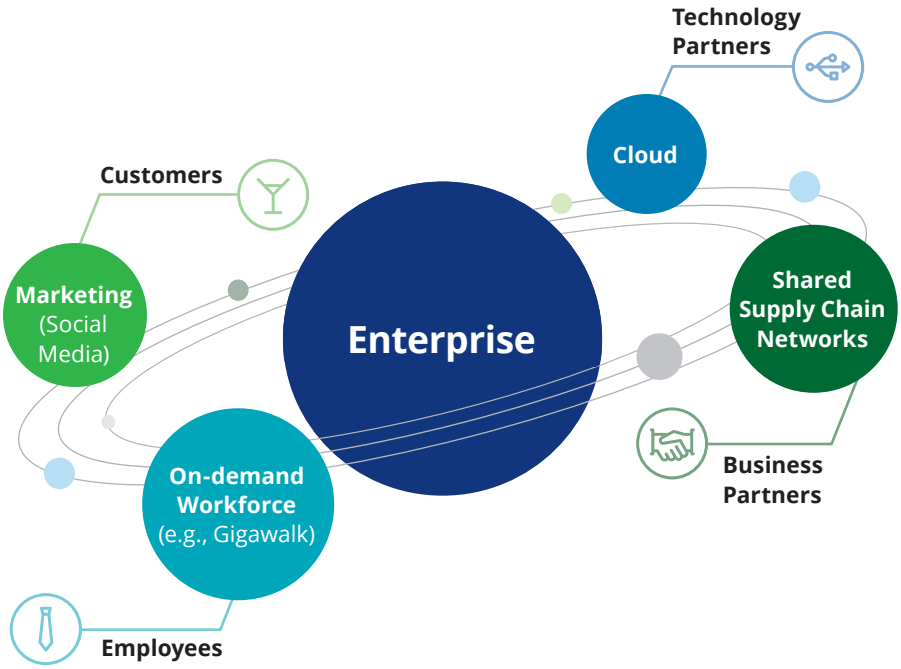
- **Establish an Ecosystem-driven Infrastructure**
  - In order to nurture and sustain the new ecosystem, the organization should build infrastructure aligned to the new service paradigm. As technology rapidly evolves, the organization should establish clear processes and criteria to support build vs. buy decisions. Delayed adoption and inability to move at the speed of the market at the hand of outdated, burdensome evaluation requirements may cost the organization dearly.

  - Operationalizing the ecosystem should balance speed and sustainability. Speed to market alone will not ferry the organization into the future; successful ecosystem orchestration must ensure compatibility of players and stability of core technology infrastructure

  - Metrics and incentives will need to be realigned to reflect the ecosystem approach. In the last fifty years corporations were defined by roles, processes and tenure. But now, in the kinetic enterprise, it's not physical assets and owned resources that matter, but rather the ecosystem as a whole. Tenure no longer reigns supreme, but rather merit and (near-term) impact. It is the realization of meritocracy.



The Kinetic Consumer Products Enterprise



To help make sense of it all and to help you build a roadmap to the Kinetic Enterprise, we present Deloitte's Tech Trends for Consumer Products, an annual in-depth exploration of six trends that are likely to challenge consumer products companies in the next 18–24 months.

From Dark Analytics to a framework for building innovation capabilities to tackle the Exponential Watchlist, these articles embody the spirit of the kinetic enterprise, represent key capabilities required for the consumer products industry to embrace and adapt in an environment of disruption.

The only constant is change—and never has that adage rung more true for consumer products than it does now. *When the rules of the game are changing, you can't afford to sit idly on the bench.*

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Tech Trends 2017: A consumer products perspective

Deloitte Consulting LLP Thought Leaders

	Introduction—The Kinetic Enterprise	Dark Analytics	Machine Intelligence	Mixed Reality	Everything-as-a-service	Blockchain	Exponentials watch list
Darwin Deano Principal Technology	X				X		
Tom Schoenwaelder Principal Monitor Deloitte							X
Bonny Smith Senior Manager Deloitte Digital	X					X	
Remzi Ural Senior Manager Data Science		X	X				
Sujit Acharya Manager Data Science		X	X				
Jason Aardsma Manager Strategy & Operations						X	
John Ugaste Manager Deloitte Digital				X			
Jenny Yi Senior Consultant Strategy & Operations							X
Kyle Hebenstreit Senior Consultant Strategy & Operations					X		
Caroline Ling Business Technology Analyst Deloitte Digital				X			

Dark Analytics: leveraging insights hidden within data

The largest and fastest growing data sources in organizations are unstructured[8] and remain unanalyzed. In consumer products, few large organizations have started to explore non-traditional data sources such as text, image, audio, and video files; machine and sensor information generated by the Internet of Things (IoT); and the enormous troves of raw data in the unexplored recesses of the "deep web." However, recent advances in computer vision, pattern recognition, and cognitive analytics are making it possible for companies to shine a light on these untapped sources, and derive insights that lead to better experiences and decision making across the business. IDC Research projects that organizations that analyze all relevant "dark analytics" data and deliver actionable insights will achieve an additional $430 billion in productivity gains over their less analytically oriented peers by 2020[9].

Dark analytics is focused primarily on raw text-based data that has not been analyzed, with an emphasis on unstructured data—text messages, documents, email, video and audio files, and still images, among others. In some cases, dark analytics explorations could also target the deep web which comprises everything on the web that is not indexed by search engines, estimated to be 500 times larger than the surface web most people search daily[10].

The data sources that fuel dark analytics are likely to multiply at a rapid rate, given that an estimated 90 percent of all data in existence today was generated during the past five years[11]. In addition, the digital data universe doubles in size every 12 months and is expected to reach 44 zettabytes (that's 44 trillion gigabytes) in size by 2020[12]. Gartner anticipates that explosive growth in IoT will result in 20.8 billion connected devices deployed by 2020[13]. The associated volume of data generated by IoT is projected to grow to 269 times the amount of data currently being transmitted to data centers from end-user devices and 49 times higher than total data center traffic. To date, only a tiny fraction of the digital universe has been explored for analytic value. IDC Research estimates that by 2020, as much as 33 percent of the digital universe will contain information that might be valuable if analyzed[14].

Analyzing social data has enabled companies to capture insights about customer needs and desires to inform product development and marketing. For example, Procter & Gamble analyzed social data and launched a campaign to persuade customers to change how they consumed indigestion reliever. The results are significant: Proctor and Gamble increased market share by 11 percent in 12 months[15]. Concurrent advances in technologies such as distributed data architecture, in-memory processing, machine learning, visualization, natural language processing, and cognitive analytics have improved processing time, accuracy, and insight generation capabilities for unstructured data. Critical strategic, customer, and operational insights are buried within enormous volumes of transactional, social, digital and other sources of data. These insights are now within reach and can enable organizations to make better business decisions. Extracting insights from unstructured data has become table stakes for many large companies.

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Dark analytics efforts typically focus on three areas:

Internal untapped data: In many organizations, large collections of both structured and unstructured data sit idle. On the structured side, this is typically due to lack of integration of disparate data sets across systems, functions, or business units. Unstructured data can include emails, notes, messages from customer call centers, and logs and notifications from IoT devices such as connected vending machines. These can contain valuable information on pricing, customer behavior, and competitors. Integrating these data sets could be extremely useful, providing access to large structured and unstructured data pools—and related insights—that were previously untapped. For example, Kimberly Clark Professional built an analytics app based on IoT data from toilet paper dispensers it uses for facility contracts; the app has delivered an estimated toilet paper savings of approximately 20 percent[16].

Nontraditional unstructured data: The second type of data consumer goods companies can derive value from is text data, audio and video files, and still images, none of which can be effectively mined by traditional methods. Advancements such as computer vision, advanced pattern recognition, and video and sound analytics capabilities provide a way to analyze these data types. Mining these previously untapped data sets can provide important insights—for example, voice data from call center interactions with consumers and customers can help companies identify key issues and customer needs. The Coca Cola Company used sentiment analysis to better understand customer sentiments and behavior. Customer conversations with a quantifiable sentiment indicator attached—a rating, a like, and a helpfulness vote—provide something to indicate how the consumer really feels. Analyzing these conversation trends, Coca Cola can derive valuable insights about customer behavior. For example, the company found that shoppers exposed to reviews and Q&A on product pages show 161 percent higher conversion rate and 195 percent higher revenue per visit. In addition, Coca Cola could identify advocates for its products and target them with promotions to improve loyalty. And the company could identify behavior related to different consumer segments—which products Millennials prefer and what Baby Boomers like[17].

Just as the intelligence community monitors the volume and context of deep web activity to identify potential threats, businesses may soon be able to curate competitive intelligence using a variety of emerging search tools designed to help users target scientific research, activist data, or even hobbyist threads found in the deep web.

Data in the deep web: As a dimension of dark analytics, the deep web offers what may contain the largest body of untapped information—data curated by academics, consortia, government agencies, communities, and other third-party domains. According to estimates, the deep web holds 750 terabytes of data compared to 19 terabytes held by the surface web[18]. However, the deep web's sheer size and distinct lack of structure can make it difficult to search. For now, only data mining and analytics efforts that are bounded and focused on a defined target—for instance licensable data owned by a private association—will likely yield relevant, useful insights. Just as the intelligence community monitors the volume and context of deep web activity to identify potential threats, businesses may soon be able to curate competitive intelligence using a variety of emerging search tools designed to help users target scientific research, activist data, or even hobbyist threads found in the deep web. For example, Deep Web Technologies builds search tools for retrieving and analyzing data that would be inaccessible to standard search engines[19]. This software is currently deployed by federal scientific agencies as well as several academic and corporate organizations. Stanford University has built a prototype engine called Hidden Web Exposer that scrapes the deep web for information using a task-specific, human-assisted approach. Other publicly accessible search engines include Infoplease, PubMed, and the University of California's Infomine[20], among others.

Focused approach
The purpose of dark analytics is to answer focused questions, not to catalogue vast volumes of unstructured data. To be effective, the effort should start with the right questions. What problem are we solving? What would we do differently if we could solve that problem? Finally, what data sources and analytics capabilities will help us answer the first two questions?

The purpose of dark analytics is to answer focused questions, not to catalogue vast volumes of unstructured data. To be successful, the effort has to start with the right questions.

By answering these questions first, dark analytics initiatives can illuminate specific insights that are relevant and valuable. Remember, most of the data universe is dark—with its sheer size and variety, it should probably stay that way.

Where should you start?
To leverage unstructured data for actionable insights, it's important for organizations to develop a disciplined process and the right tools. Consider this series of practical steps to get started:

Ask relevant, focused questions, then extrapolate: Focus on specific problem statements and then identify and process the required data. For example, if an organization with a significant direct store delivery (DSD) go-to-market model wants to understand the optimal assortment at a store level, it should focus the analytics effort on one market, prove the value, and then roll out to other markets one by one or in groups. This allows the organization to focus on very specific data such as sales, demographics, and other unstructured data for that market. Big data can be leveraged for insights into many areas of business value, including consumer sentiment analysis, brand value, shopper behavior, assortment optimization, and innovation.

Leverage external data: Augmenting internal data with external and third-party data can improve the depth of insights. For example, to help uncover sales drivers, a CPG organization can augment its sales data with external demographic, socio-economic, and weather data to determine the true drivers of sales.

Augment data talent: Data scientists are an increasingly valuable resource, especially those who can artfully combine deep modeling and statistical techniques with industry or function-specific insights and creative problem framing. Going forward, those with demonstrable expertise especially in the areas of machine and deep learning programming visualization and traditional skills such as master data management and data architecture will likely be in demand.

Use advanced visualization tools: It's crucial to understand the "so what" and the "why" of complex analytical insights before insight can be turned into action. This can be done with effective visualization through infographics, dashboards, and other visualization methods.

Make it a business-driven effort: It's time to recognize analytics as an overall business strategy rather than an IT function. This involves support from the C-suite and CEO alignment on making analytics part of business strategy and an insights-driven advantage (IDA) in the marketplace. One key way to help ensure buy-in is to first pilot a project that will demonstrate the tangible ROI that can be realized by the organization with a business-wide analytics strategy.

Think broadly: As you develop new capabilities and strategies, think about how you can extend them across the organization as well as to customers, vendors, and business partners. Your new data strategy can then become part of your reference architecture.

The Bottom Line

With ever-growing data reserves still unexplored, aggregation, analysis, and storage are no longer end goals in the agile organization's analytics strategy. Going forward, analytics efforts are expected to focus on illuminating powerful strategic, customer, and operational insights hidden within non-traditional and "dark" data sources for CPG companies. Be excited about the potential of unstructured and external data, but it's important to stay grounded in specific business questions such as consumer sentiments, shopper behavior, assortment optimization, innovation, brand health and promotional feedback with bounded scope and measurable, attributable value. Consider these questions to help focus your dark analytics efforts on areas that matter to your business—and to avoid getting lost in the increasingly vast unknown.

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