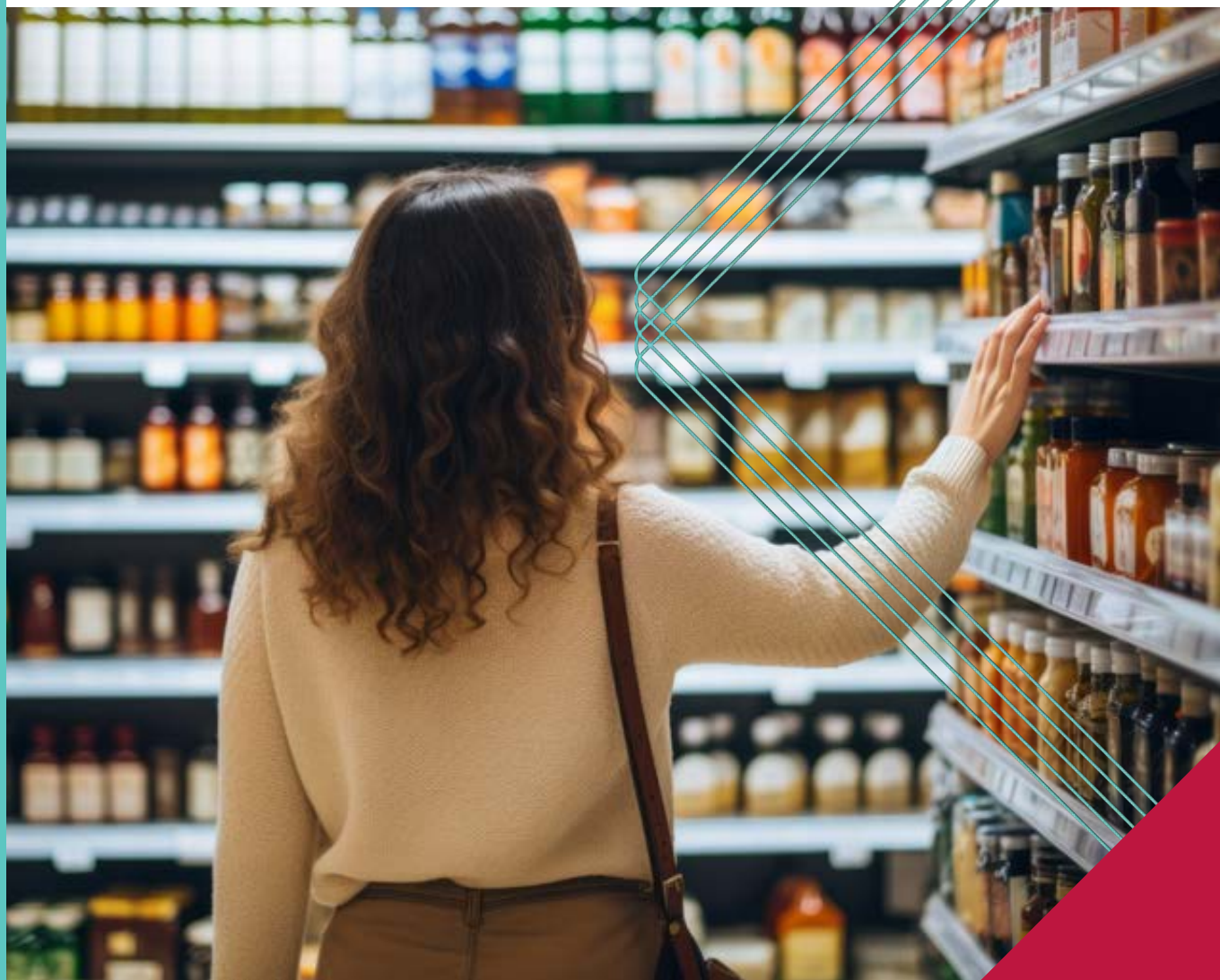
EBOOK

Rockwell Automation | KALYPSO

Digital Transformation in the Consumer-Packaged Goods Industry

Accelerate your Digital Transformation from product to plant to end user



Executive Summary

In the last three years, the consumer packaged goods (CPG) industry has undergone profound changes – particularly when considering digital strategies. n the pre-Covid days, digital transformation by integrating information technology (IT) with operational technology (OT) was an optional investment for industry leaders and innovators. Once Covid hit and the supply chain crisis came into effect, resiliency and cost optimization became more important than ever. Digitization went from a nice-to-have for some to a must have for all – sparking a rapid exploration of digital capabilities across the industry.

Today, we are beginning to see the fruits of that development, as early adopters start to reap quantifiable ROIs from their technology investments. As these capabilities evolve, however, so do inherent challenges, forcing companies to adapt to ever-changing market conditions, continuously align and realign their leadership and operations, and effectively handle organizational change management for technology solutions.

In this eBook, we will leverage our case study backed research to explore these challenges, consider mitigation strategies and outline digital transformation and enablement solutions.

Challenges Impacting CPG

As the world emerges from the worst of the COVID-19 pandemic and the economic environment sways under increased inflationary pressures, the consumer packaged goods industry faces a mounting set of challenges.

These new obstacles have developed alongside the industry's historic challenges related to building brands, staving off new entrants' encroachments, complying with evolving regulations and delivering on consumers' latest wants and desires.

Increasing Costs of Inputs as Consumer Willingness to Pay (WTP) Remains Constant

At the top of executives' minds are economic headwinds. The cost of production inputs has climbed steadily in recent years, sitting 30% higher today than in the year prior. Customers are increasingly refusing to compromise on price as inflation and the potential for recession loom large. For an industry built on a high volume, low margin playbook, these are troubling trends. Yet, there is hope for some. Firms that use these lean times to optimize their costs and innovate new strategies to generate profit will have an opportunity to build long-lasting capabilities that will reinvigorate long-term strategies.

Back-to-the-Basics Production Mixing and On Shelf Assortment

In response to these pressures, we see companies taking action. Leaning on a keen understanding of their portfolios and mixes, companies increasingly pursue a "back-to-the-basics" approach to production mix and on-shelf assortment. A focus on new product development and intensive R&D initiatives is deprioritized in favor of keeping marquee brands and higher-margin shelf sets stocked. A focus on the basics ensures consumers can connect with the products they love while suppressing cost centers like R&D departments.

Reduced Capacity in Response to Shortages

Inextricably linked to the macro environment are continued strains on global supply chains. Even as some companies find their footing and mend the value chain, the uncertainty of what could happen remains. Because of labor shortages, estimates suggest companies are operating at only 80% capacity. Coupled with year-over-year transportation cost increases of 16%, not only has it become increasingly difficult to achieve CPG's critical economies of scale, but it has become even costlier to deliver the products firms produce. While these are challenges which can be mitigated by new, adaptive planning models, many companies continue to rely on aging models and planning infrastructure and suffer as a result.

A Shifting Regulatory Landscape

Steadily approaching are new regulations that are likely to significantly impact business operations. Legislation such as the U.S. Securities and Exchange Commission's (SEC) new environmental disclosures and policies emerging from the newly created International Sustainability Standards Board will require companies to significantly improve their understanding of their products' Scope 1, 2 and 3 emissions. As sustainable tracing is pushed by both regulatory agencies and consumer demand, companies will need to invest heavily in building out their data infrastructures to ensure traceability across their supply chains.

The Keys to Success: OCM and Value Realization

For digital transformation programs to launch, scale and drive business value, they need to go beyond the technology to connect with the processes and people ultimately carrying out the change. Organizational Change Management (OCM) should be an integral part of the program to help shape and drive the entire initiative.

OCM is one of the most important – yet often overlooked – aspects of any digital transformation initiative. It is at the heart of the change and the key to success; it's the glue holding a program together. It ensures the organization is prepared for change and properly brought along on each step of the journey. This has always been the case, but it is even more so in the post-pandemic era. According to recent Gartner research, 69% of organizations report that their organizations have accelerated their digital business initiatives, while also anticipating that employees will experience on average five times the number of disruptions and organizational changes in 2023 as they did in 2014. As the number of disruptive changes increases, the research also shows a 50% reduction in the average employee's capacity for change before becoming fatigued. OCM plays a crucial role in reducing this fatigue, while also balancing the changing environment created by multiple organizational changes and disruptive forces.

Of course, some may look at the current market – the inflation rate, continued supply chain disruption, and the potential for recession on the horizon – and begin to reduce their investment in new technology solutions. While this may alleviate some of the cost pressures in the short term, it serves as a band-aid on an open wound. To fully take advantage of both up-market and down-market circumstances, companies need the operational resiliency that is enabled by digital enablement. In these lean times, however, it may be better to focus more on the technology solutions with quantifiably proven and short-term ROIs, instead of the traditional proof of concept trail-and-error methods used in the past.

Regardless of the solution that is chosen, companies should not fall into the trap of underestimating the importance of OCM. Even if leadership invests in the best technology money can buy, it will flounder without an effective implementation and end-user adoption. Organizations need to be committed to ensuring their employees are onboard, not only with the tools, but the concepts of how business will be done going forward.

Change Assesment

- Asses Organizational Readiness for change
- Identify strategic imperatives
- Identify benefits
- Manage implementation perception
- Define post Go-Live adoption metrics

Governance & Process

- Gain executive sponsorship
- Identify, assess, and engage stakeholders
- Establish project governance
- Set leadership review points for alignment
- Lead process owner and deployment teams to drive change

User Adoption

- Coach project team and change leaders
- Address solution deployment impacts
- Collect CRP/UAT feedback
- Build and lead training strategy
- Create training materials
- Execute knowledge transfer plan
- Implement hypercare processes and user support infrastructure

Communications

- Develop plan
- Design and deliver communications

Results Measurement

- Develop benefits case
- Baseline current state and define tracking plan
- Capture and adjust delivery based on lessons learned
- Monitor and measure adoption success

Applying Digital Solutions

Regardless of the problems facing CPG in the years to come, enabling digital solutions will be a major focus area for industry leaders. Companies should take a careful look at where they prioritize their investments in digital technologies. Before all else, having enough of the right kind of data is key. To quote the adage, "If you can't measure it, you can't improve it."

If the right information and KPIs are not being tracked currently, companies need to invest in technologies that improve their performance metrics before investing in technologies that improve financials and increase organization resiliency.

But having data isn't enough. It must be appropriately organized, analyzed and responded to. Once a backbone of data infrastructure is in place, companies will need to align the findings with their business strategy and identify which gaps and focus areas are priorities for digital investment. Once alignment is reached, they can begin researching and assessing the speed and amount of ROI for various technology solutions, which can address critical focus areas such as meeting compliance standards, reducing operational costs and/or improving speed to market.

Outside of informing future areas for technology investments, historic data can also be leveraged to identify trends, respond to supply/demand fluctuations in real time or even predictively, and inform future business strategy.
Improved monitoring metrics in manufacturing assets can enable Smart Connected Operations, which can help reduce both unplanned and planned downtown, while newly optimized resource allocations and smart shopfloor planning can enhance labor effectiveness.

As we progress further into the digital age, companies will think less about whether to enable digital transformations, and more about how to strategically enable it to the best effect. True market leaders will consider the people, process and technology aspects of their digital transformations, to create a scalable, unique roadmap, custom-tailored to complement their own business strategy. These companies are most likely to develop the resiliency and efficiency necessary to meet current challenges and unknown challenges to come.

High Impact Use Cases

CPG leaders are seeing real business results from digital transformation initiatives. Here are some of the most valuable use cases.

Digital Product Creation (DPC)

Digital Product Creation is the digitization of the design and development process. DPC allows companies to design and develop products and their packaging in a virtual environment and test the product design through physics-based simulations. DPC significantly reduces development time and costs by iterating and testing designs virtually while capturing all relevant design history data through each design iteration. It establishes a high confidence level that a design meets consumer, customer, product, costs and sustainability requirements before investing in physical trials.

Product Lifecycle Intelligence (PLI)

Product lifecycle intelligence applies data science and machine learning to your product and packaging information stored in PLM and other product data management systems to find insights and prescribe recommendations based on historical data. PLI can also screen new product concepts for technical feasibility, safety, customer, market, regulatory and sustainability requirements.

Digital Twin

A digital twin is the digital representation of a company's operations including supply chain, manufacturing and distribution. These digital twins are virtual representations of operations and utilize simulation and emulation models to test and optimize new or changing operating designs and configurations. The digital twin allows companies to understand how a system will operate before commissioning equipment and can virtually optimize control logic and PLC code through advanced simulation and emulation techniques.

Energy Management and Sustainability

Establish real time visibility into a facilities use of energy and water. Using metering and advanced machine learning, CPG companies are identifying opportunities to reduce energy and water use and optimize utility costs through prescriptive analytics.

IIoT Energy Management Solutions combined with AI and Machine Learning enable the entire Sustainable Energy Management value chain delivering material benefits to both the Enterprise and Environment.

Kalypso focuses on nine initiatives that we believe sustainability leaders should consider:

Connected Energy & Smart Facilities Management	Energy Efficiency / Demand Side Management	Demand Response / Load Management	Energy Sourcing and Supply Optimization	Distributed Energy / Renewables Integration	Carbon Neutrality / Emissions Reduction	Plant Cogeneration Integration	Product Sustainability Innovation	EV Fleet Management
Reduced energy consumption by 10 to 30%	Reduce lighting electrical and replacement costs by 3 to 5 times HVAC cost savings of 5 to 8%	Reduce peak demand charges by 50% that can account for 30% of overall energy costs (15% net savings)	$2 to $20/MWh savings under competitively bid contracts	Reduce almost 400 hours of congestion in the power grid and save up to USD $2M in fuel costs.	Take actions and purchase of high-quality carbon offsets to reduce lifetime net carbon footprint	Savings of 15 to 40% of primary energy need compared to the separate production of electric and thermal energy	Improved process, visibility, reporting, and margins Reduce & Reuse waste and emissions	EVs have a typical energy cost of $50-80 per month, approximately $80-150 lower than the ICE gasoline cost

Process Control Optimization

Optimize a manufacturing process through machine learning control. Machine learning algorithms allow sensor, vision systems and manufacturing operating control systems to learn, adjust and control a manufacturing process to automatically optimize quality, yield and throughput.

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Production Performance Management

Utilize IT and OT production performance data to find, analyze and visualize production losses, identify the root cause of the loss and prioritize them for continuous improvement. Production Performance Management provides real time visibility to the most important production performance problems at the line, site and enterprise level and tracks their resolution through completion.

Asset Performance Management and Predictive Maintenance

Actively monitor manufacturing and operations asset performance to proactively identify anomalies and schedule preventative maintenance to optimize operating performance and maintenance costs.

Production Scheduling and Monitoring

Machine Learning algorithms optimize production scheduling based on known constraints and past performance data. When a production constraint is identified, planning and scheduling algorithms prescribe in real time the optimal production schedule and resource plan based on resource performance and asset availability.

Real-Time Product Release

As supply chain constraints continue to be a challenge, getting products into distribution channels is important to reduce out of stocks. Often products are stocked in the Warehouse as production and logistic is waiting for the final Quality release. If the set regulation and compliant goals are being checked during the online and lab quality checks in production and all data are being in context available, the digital thread would allow you to provide a prediction on the foreseen release of the product so that the product can be shipped and released during distribution.

Taking the Next Steps

It is an unavoidable fact that we now are part of a digital era. Companies will need to digitize to keep up with their competitors by using digital solutions to optimize their operations, invigorate R&D practices, reduce time-to-market, forecast supply & demand trends and meet regulatory compliance requirements.

The biggest challenge, however, will be effectively making the transition. In this potentially recessionary environment, companies will need to rapidly align business and operational goals and incorporate solutions with hard short-term ROI's that can lay the foundation for future improvements.

We are past the scientific experiment "proof of concept" stage of digitization. Market disruptions have pushed us through that stage at a breakneck pace. Companies need to make concerted efforts to see what proven solutions are out there and begin the process of implementing them.

About Kalypso

Kalypso, a Rockwell Automation Business, helps clients fundamentally change the way they discover, create, make and sell products by powering innovation and autonomous operations with a digital value chain. From product ideation to production to the end customer, Kalypso provides professional services in strategy and change management, data science and artificial intelligence, enterprise technology, and managed services. Kalypsonians bring deep expertise in discrete, hybrid and process industries and serve clients around the world.

For more information, visit **kalypso.com**.
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