AI for CPG: Making AI Make Money

A practical guide for CPGs to use AI to improve core operational processes and increase profits.

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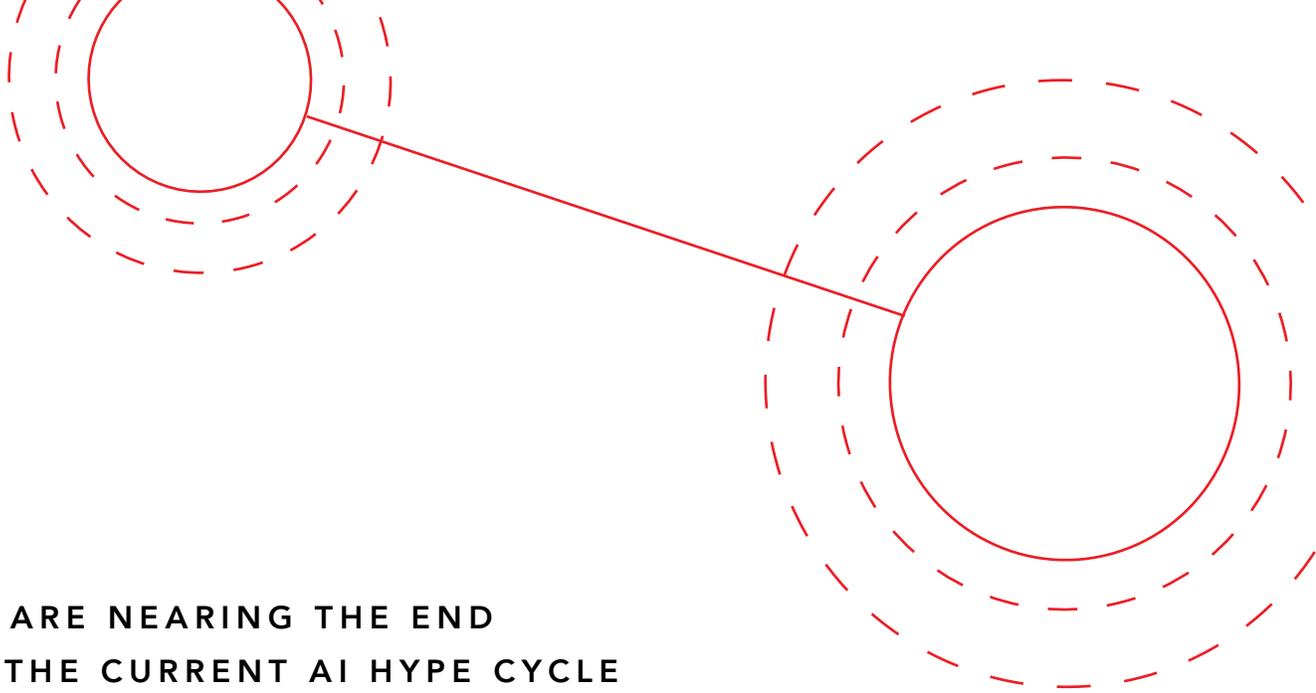
WE ARE NEARING THE END
OF THE CURRENT AI HYPE CYCLE

The term 'AI' (Artificial Intelligence) has gathered momentum over the last few years and is arguably today's most over-hyped business buzz phrase. The vast majority of Global 2000 CEOs are being challenged by their Boards to demonstrate operational and financial benefits from applying AI to their businesses. Almost every large company has established some kind of working team to brainstorm and prioritize AI applications, and many companies have funded some specific pilot projects that have emerged from this process.

In our experience, most of these initiatives will end up disappointing their sponsors. The problem is *not* that experienced senior executives will somehow be misled by all this buzz. They know a hype cycle when they see one. They also understand the eternal verities of successfully introducing an important new digital technology:

Pilot quickly at low-cost

Demand some measurable short-term impact, and reinforce success

Maintain an unwavering focus on the bottom-line

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This has been the playbook for the large companies that have most successfully introduced major new technologies from enterprise data warehouses to CRM systems to the Web, and it is a requirement for successfully introducing AI to create shareholder value.

The problem, rather, is that most executives do not have a sufficiently granular understanding of AI to allocate pilot-stage resources well. As with all technological advances, it is unnecessary for CXOs to understand the detailed inner workings of a piece of AI software, just as it is unnecessary for them to understand the detailed engineering of their mobile phones' operating systems. But what they *do* need to know about AI is the answer to one question: *What is it good for?*

Right now, most senior executives don't have a clear answer to this question, and thus many companies are undertaking pilots addressing the wrong business problems, measuring the wrong short-term metrics, and trying to build platforms and roadmaps which – at this stage of AI's maturity – will often do more harm than good.

WHAT AI IS GOOD FOR

AI on television is robots playing Jeopardy. But in our experience, AI that makes money for a large consumer business almost always follows a specific pattern: it is software that uses data + math to create statistical improvement in a repetitive business decision process. Examples include:

- Operational processes such as assortment and aisle layout or deploying shelf detailing capability;

- Back-office processes such as finance or procurement;

- Marketing processes such as trade promotion, pricing offer optimization or direct-to-consumer personalized marketing;

- Analytical processes such as demand forecasting

In fact, once one knows what to look for, profitable AI opportunities are hiding in plain sight everywhere inside of a large CPG company. AI can drive outsized profit improvements, but they aren't achieved in a single huge 'transformational' investment. The benefits are realized incrementally, by building a mountain of pebbles. And for large CPG companies, each 'pebble' can be worth millions of dollars of profits.

Isn't this saying that practical AI is really just process automation? Yes, in a sense. But it is automation (and to be more accurate, often semi-automation) of a specific kind of process: cognitive business processes that require decision-making under uncertainty.

MAKING AI MAKE MONEY

Choosing the right business application areas is the starting point for effective executive management of AI. In theory, starting with a list of new technologies and then determining how much money is at stake in applying each of them to various business challenges should get to roughly the same place as starting from business problems and testing the case for applying new technologies against them. In practice, however, we have found companies are much better off starting with the business problems, primarily because evaluating technical feasibility is a far more delegable task than judging where the profit opportunities sit in a business.

Specifically, senior executives should identify a short list of core repeated decision processes with high profit leverage that would be improved with better data utilization. We have rarely found them to be wrong about this. The work of the staff is then to estimate the value-at-stake for each process that is addressable with the AI technology of today (not the potential technology of five years from now). An AI pilot should not begin without a clear plan to generate measurable incremental cash flow within 12 months.

REVENUE GROWTH MANAGEMENT AND AI IN CPG

Many CPG's are evolving the management of their top line investments in pricing, promotions, trade spending and assortment to an approach that integrates input from Sales, Marketing and Finance. This model is called Revenue Growth Management (RPG).

The general objective of RGM is to coordinate previously separate top-line decisions across the company into a coherent strategy. This makes the enterprise more disciplined and focused on the strategy to achieve its goals, and less prone to short-term responses to immediate challenges.

In addition to complicated organizational alignment challenges, driving shareholder value with RGM requires a complex set of analytical capabilities that modern AI systems can provide. Two key examples are: (1) Demand Prediction and (2) Pricing / Promotion / Assortment Integration.

1 Demand Prediction

Demand prediction is well understood to be important for any CPG to help tailor and target investment, and has been since well before the advent of RGM. But, accurate demand predictions are even more essential for CPGs as they adopt RGM principles and align internally on investment strategies. This is because the demand prediction is the baseline sales forecast against which projected price, promotions, assortment and other changes can be measured.

Interestingly, demand prediction was considered a relatively 'solved' issue at the beginning of the 21st century, when there was an explosion in the creation of highly detailed mix models that purported to provide granular guidance for media investments and promotions. However, these models had a precipitous fall from grace when they failed to accurately predict investment outcomes during the great recession of 2007-2008. The accuracy of these models has further degraded over the last decade due to ongoing increases in online penetration in core CPG categories. Executives have concluded that addressing this erosion in reliability by upgrading old code in their models is expensive, complicated and unlikely to add value.

Demand prediction has therefore resurfaced as a major source of opportunity, in part because of this accuracy decline within legacy models, but also because of two new factors that are enabled by Artificial Intelligence:

Our ability to create and integrate new forms of data is expanding rapidly. Examples include online expressions of customer sentiment, real-time video feeds by location, input from traffic monitoring devices, weather forecasts, smartphone app-based tracking, local events and web pricing trends, all integrated with detailed retailer-provided data.

Rapid technological advances now allow companies to model data in previously impossible ways, using optimized ensembles of deep learning, gradient boosting machines and other algorithms. These approaches enable modern demand prediction systems to outperform legacy versions by considering the subtle and quickly changing demand patterns that exist in most businesses.

The new generation of AI-powered demand predictions are not only more accurate than legacy approaches, but they also can be integrated with other AI tools to support more complex decision making. One powerful example is with Pricing / Promotion / Assortment Integration.

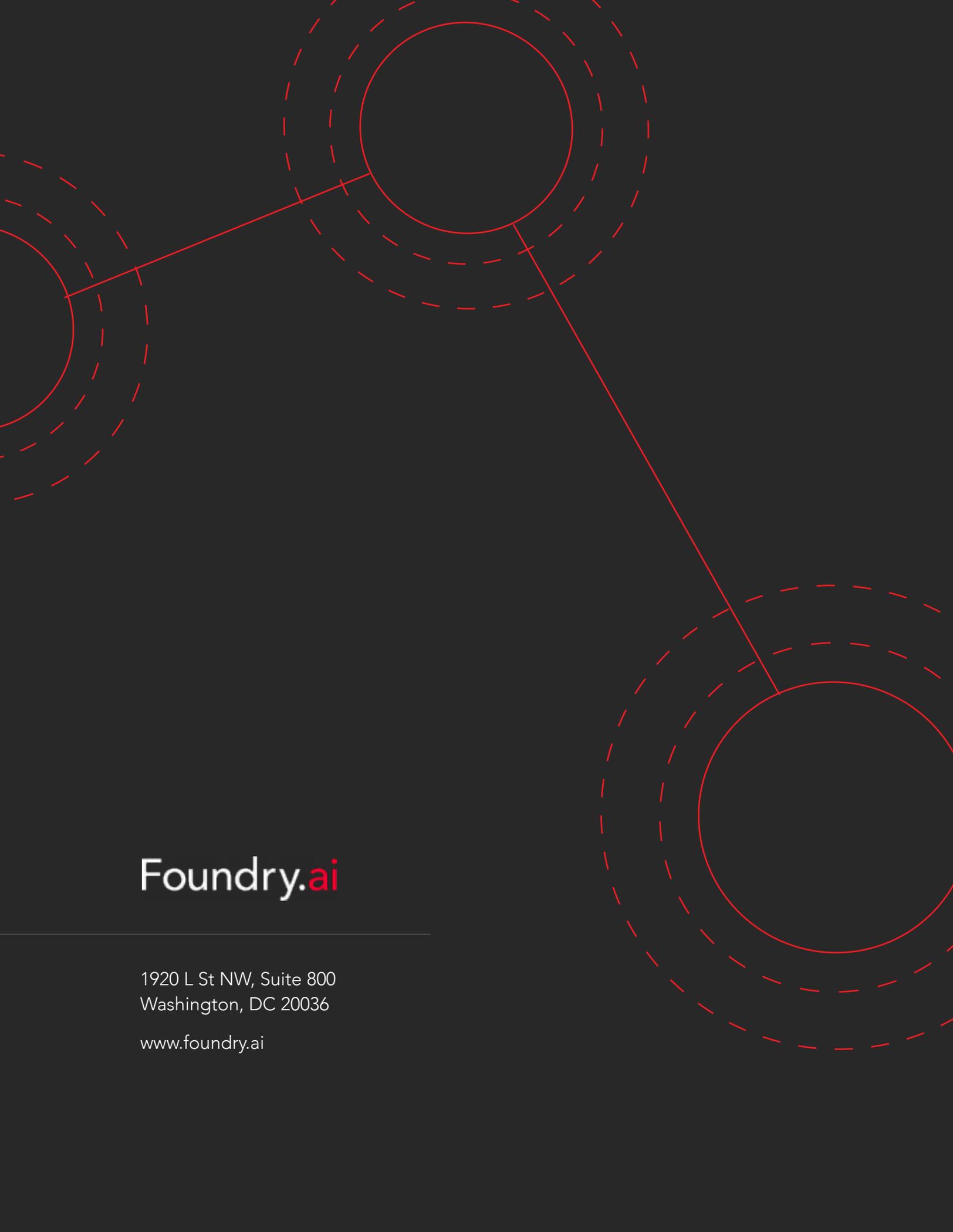## 2 Pricing / Promotion / Assortment Integration

While most large CPG companies have deployed trade promotion optimization tools, RGM requires analytics that integrate pricing, promotions and assortment decisions, rather than treating them as separate capabilities that reside in different parts of the organization. Moreover, it is essential that these integrated models transcend top-line-only impact and include a calculation of integrated profit. Lastly, these tools should be capable of

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supporting tactical segmentation, modifying these decisions by product, by individual retailer location, and by customer.

AI facilitates the creation of these integrated price-promotion-assortment profit models to assess the impact and effectiveness of price changes, hundreds of individual promotions, and the interaction with assortment decisions. And these sophisticated tools can be especially powerful in the hands of CPGs in the role of category captain, as they coordinate activities that can have a strong direct payoff for them and the retail partner.

CONCLUSION

While much of today's AI focus centers on flashy use cases and large transformational investments, most of the real successes for CPGs have come from using AI in highly practical ways to improve core business operational processes. We have seen executives who follow the guidelines in this paper successfully capture this opportunity, creating significant value within surprisingly short timelines. We hope these concepts help you as you consider how to drive focused, pragmatic, and profitable AI initiatives within your organization.

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