

# 1 FirstAlign

Not Just Knowledge, Know How!

## White Paper

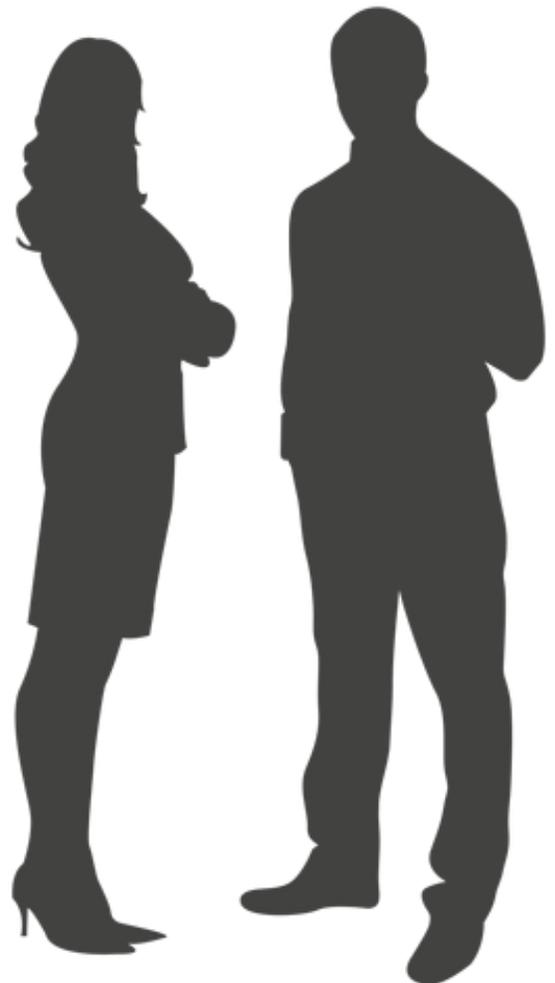
Artificial Intelligence for Brand Management!

An exploration of the Use of Artificial Intelligence (AI) in the Management of Brand, Brand Identity and Customer Perception.

August 2017

*Maximizing Human Potential*

Transformation ~ Centers of Excellence ~ Artificial Intelligence



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# Summary

A brand is a product, service or concept that is publicly distinguished so that it can be easily communicated, marketed and positioned. Artificial Intelligence or “AI” offers an unprecedented ability to improve brand recognition, experience, perception and bottom line.

There is a clear need for intelligent systems to take decisions through strategic intelligence. AI focuses on the development of valuable automated solutions that require less human intervention. We look into brand management through AI-powered customer experiences and advertisements.

As markets become more competitive, branding strategy is vital in gaining and maintaining customer loyalty. AI powered customer experiences and programs significantly aid in this process and hence is an important aspect of Marketing. To select the best branding strategy, a Brand Manager should understand the following aspects:

- Human psychology in decision making depends on need and loyalty.
- Psychology in implementing “best practice” branding strategy.
- How decision making is affected by Branding Strategies.
- Effectiveness of the branding strategy on the product or service.

AI has the unprecedented ability to improve brand interaction and is the power to rationalize and take actions that promote the best chance of achieving a specific branding goal. AI helps

Marketers make the brand experience more personalized and predictive, combining to provide better products and services. This enables the avoidance of a high degree of fluctuation in customer perception.

AI tools, such as Signal Weighting and Entropy Pooling, are helping in Crisis Management and Promotion of Brand Strategy. Through AI tools companies are achieving significant advancements in customer experience and satisfaction due to improved performance, generating significant value and competitive advantage.

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# Introduction

This white paper is an exploration of the possibilities for **Artificial Intelligence (AI)** in rethinking the development of enterprise Brand Management. We explore the current thought around **“Brand”** and how AI can improve awareness and equity. We investigate the focus of AI on the development of valuable automated solutions that require less human intervention. We look into brand management through AI-powered customer experiences.

This includes a case study review of brand cycles for promotion and crisis, and how AI can introduce intelligence-based applications to identify and mitigate impacts before and after the fact; promoting brand advantage.

# Understanding

AI plays an important role in business segments such as marketing, brand management, customer services and product strategies, particularly with regards to speed and efficiency. Key areas where AI can impact operations include;

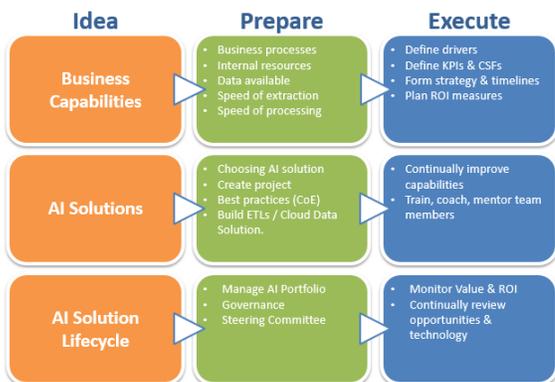
**The Intelligence-driven Product Catalog:** Leverage customer behavior and engagement data to automatically fine-tune product catalog offerings. By optimizing price, content, size, validity, etc. of a product catalog, and propose configurations based on deep learning of available data.

**Network Optimization:** Enable efficient and proactive routing by optimizing network configurations according to dynamic demands, traffic volume, user behavior and other parameters.

**Marketing Engagement:** By creating contextual, personalized engagements, across a wide range of criteria in real time.

**Customer Care:** By harnessing intelligence and automation, by anticipating needs and “just in time” engagement (right time and channel).

Figure 1: Brand Management with AI implementation



## Decision Wheel

Factors affecting a decision on a brand’s current market position.

**Brand Management of Experience:** Companies are focusing more on Brand Management through customer experience. Happy

customers market for them. Brand loyalty and reputation leads to increased growth [1].

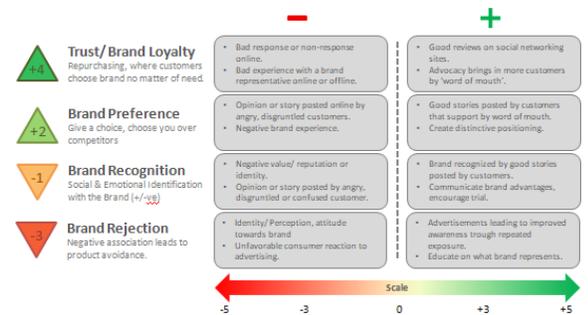
Figure 2: Decision Wheel

AI has improved customer experience by providing fast and efficient solutions such as voice, speech recognition, and understanding human emotions. More energy is directed to building AI-powered Application Programming Interfaces (APIs) that generate personalized recommendations. Thus branding links the business and its consumers [2], improving consumer perception.



Figure 3: Brand Management through Customer Experience.

**Digital Media in Brand Reputation:** Digital Media allows opinions to spread quickly. Word of mouth and social search are powerful reasons to manage Digital Media reputation; one bad experience will be retold.



Customer Reviews can damage or enhance reputation hence the importance of Brand Strategies. Brands are using Artificial Intelligence to better control customer experience and brand hype.

Figure 4: Brand Indicators

Brand automation software companies, such as “Marketo”, take care of tasks that once required hours of labor, such as sending nurture emails or qualifying leads.

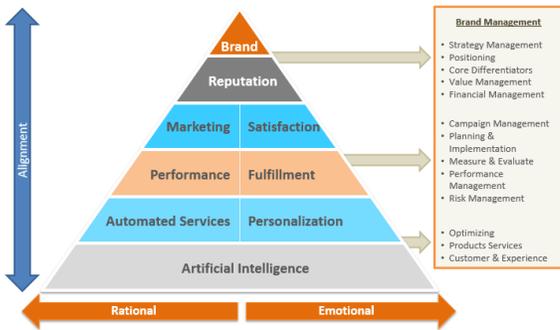


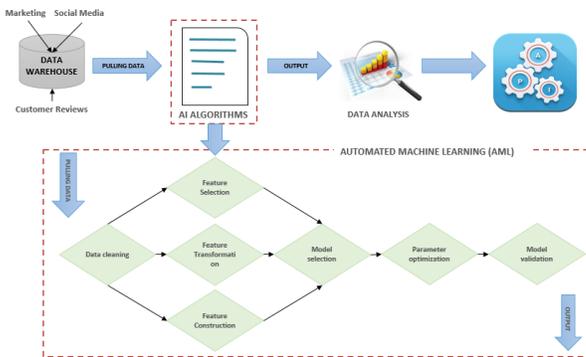
Figure 5: Brand Reputation pyramid

# Intelligence

## Key Phases of Enterprise AI

There are three key phases of enterprise AI:

Figure 6: Phases of Enterprise AI



**Data:** AI’s usefulness is a function of data quality and quantity. AI delivers strong insights, discovery, prediction, recommendations, automation and self-learning through, adaptable algorithms.

**Algorithms:** The constancy of data analysis, research, development, and timely action based on workflow insights is the job of data scientists and line-of-business experts.

**Workflows & Machine Learning (AML):** Automated Machine Learning allows learning and optimization of outcomes to improve routine actions. Automation modeling and signaling improves identification and completion of tasks even faster. **‘AML is all about automating automation’.**

## AI Approach

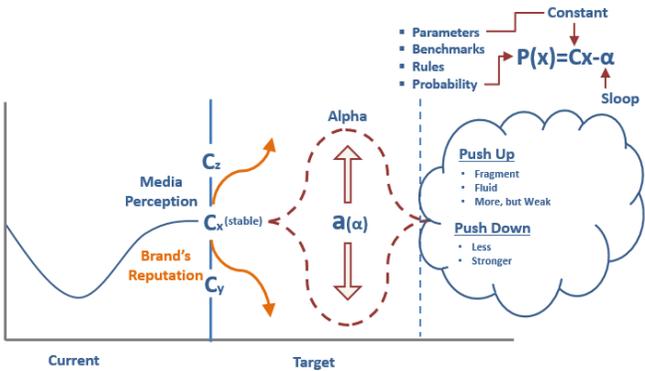
**Signaling:** AI approaches analysis in several ways such as **Signal Weighting** [3,4,5] to understand event risk through measurement of importance and frequency applying “best fit” solutions to conventional filters, or **Entropy Pooling** [3,4] where signals can also be integrated using confidence scores are assigned to signal and a new posterior distribution is developed.

Figure 7: Algorithm Chassis/ Engine

Each develops the probability of a brand image moving up and down a scale which can be shown as:

**Probability & Parameters:** Likelihood of an event under a set of conditions.

- Population mean =  $\mu = (\sum X_i) / N$
- Population standard deviation =  $\sigma = \text{sqrt} [ \sum (X_i - \mu)^2 / N ]$ 
  - Population variance =  $\sigma^2 = \sum (X_i - \mu)^2 / N$
  - Variance of population proportion =  $\sigma_p^2 = PQ / n$
  - Standardized score =  $Z = (X - \mu) / \sigma$
  - Population correlation coefficient =  $\rho = [ 1 / N ] * \sum \{ [ (X_i - \mu_x) / \sigma_x ] * [ (Y_i - \mu_y) / \sigma_y ] \}$



## Use Case

# Business Case

The following are demonstrations of two use cases illustrating the cycles of hype generated around promotion and crisis of a brand and the impacts on brand identity viewed from these principles.

## Promotion

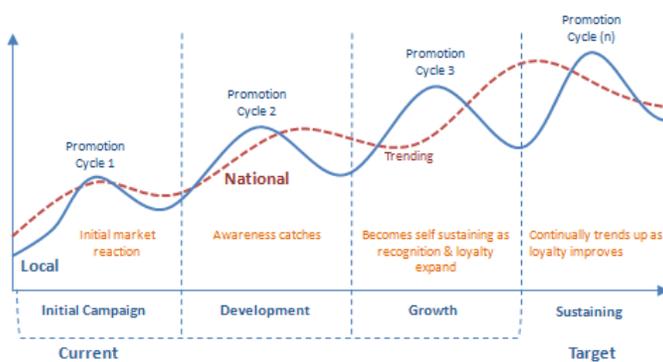
The following is an example of a “Brand promotion and identity development” of a product or service. This example is promotion point development for “X Cat Food” for a particular product over time. This illustrates positive impacts to promotion to generate customer loyalty.

Local promotional cycles generate increased awareness and sales of dry food goods, therefore increasing brand identity and awareness.

AI powered customer experience enhances brand loyalty. Over time this leads to upward trending at a national level where word of mouth and use of Digital Media creates positive hype about the product. A self-sustaining market for the brand is therefore created.

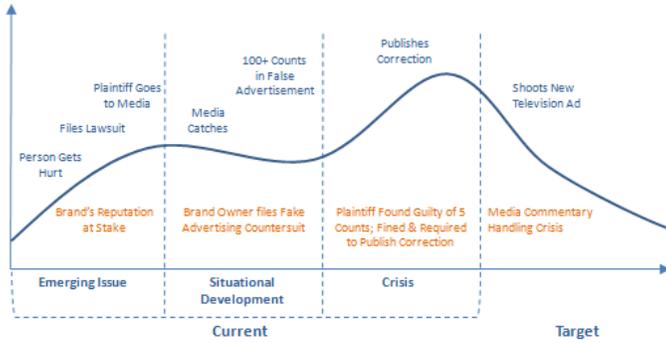
*Figure 9: Brand (Promotion Cycle).*

**Impact:** As promotion cycles progress, brand awareness increases. Positive customer experience generates brand equity; word of mouth in turn creates a self-sustaining market and upward trending of brand equity.



## Crisis Management

The following is an example of a “Person claiming to have gotten hurt” by a product or service. This example is a potential crisis point for “X Cat Food” developing when contaminated pet food causes injury or death. This illustrates escalation and reactions to crisis to mitigate impacts.



Digital Media is a good indicator that is important to a company’s reputation. Businesses can be followed on Twitter by anyone – customers, potential customers, and competitors.

AI generated signal reviews of Digital Media, identifies triggers to help companies monitor brand mentions and also allows swift responses to negative circumstances.

Figure 8: Brand (Crisis Cycle).

**Impact:** The ‘Media Hype Cycle’ can be managed and controlled more quickly and accurately allowing the brand to better react before the cycle stages through from start through widespread media perception; this evidentially dies out.

## Brand Value over Time

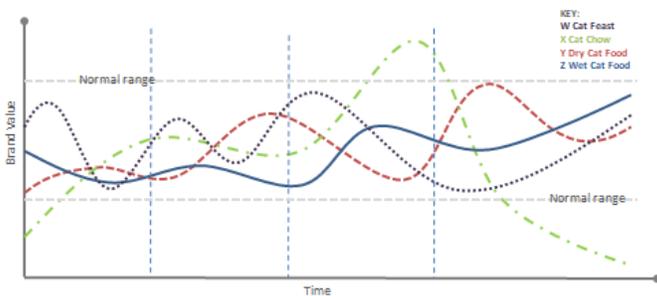


Figure 9: Brand (Over Time).

Observed over time brands exhibit as a cycle of positive and negative trends.

Constant AI monitoring seeks to provide data and recommendations that identify and mitigate abnormalities thus establishing a **normative range** of fluctuation, a “**process control**” by which Brand Strategy maybe better applied.

**Impact:** Continuous cycles that generate positive trends build up brand capital. By process control brands are able to limit exposure to high fluctuation events. Increases in brand loyalty better insulate the brand against isolated events that do occur.

# Take Away

Companies provide “Brand” statements to the marketplace expressing its identification, connection and fulfillment of customers’ needs; they in turn market for them. Brand loyalty and reputation, therefore directly influences sales and growth.

AI, through automated data collection and business intelligence, fosters better answers to complex problems, eases decision making, and enhancing brand identity and promotion.

AI provides signals on market brand perception and provides better recommendations to manage those perceptions. Through tools such as Signal Weighting and Entropy Pooling, AI generates significant value, improved performance, customer awareness, experience, satisfaction and bottom line.

AI is better able to maintain and avoid high degree fluctuations of customer perception, reducing impact and maintaining upward performance trends.

For more information, please visit [www.firstalign.com](http://www.firstalign.com) to discover ways we can help.

## References

<sup>1]</sup> Anni Isotalo and Samu Watanen. 2015. *The impact of Brand Experience on attitudes and Brand image ~ A Quantitative Study*. Master Thesis, EFO 704, Mälardalen University School of Business, Society and Engineering.

<sup>2]</sup> Ms Suman Si, Ms Mansi Kapoor (2014) *Impact of Branding Strategies on Consumer Buying Behavior in FMCD Industry*. IOSR-JBM 16(1): 126-135.

<sup>3]</sup> Attilio Meucci, David Ardia, Simon Keel (2011) *Fully Flexible Extreme Views*. Journal of Risk 14(2): 39-49.

<sup>4]</sup> Meucci, Attilio (2011) *Mixing Probabilities, Priors and Kernels via Entropy Pooling*. GARP Risk Professional, pp. 32-36, December 2011.

<sup>5]</sup> Richard Grinold. 2010. *Signal Weighting*. The Journal of Portfolio Management 36(4): 24-34.

### **Additional reading of interest.**

Albelwi, S. Mahmood (2017) A. *A Framework for Designing the Architectures of Deep Convolutional Neural Networks*. Entropy 2017, 19, 242.

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