

March 2022

Media and Entertainment

Data Engineering and Intelligent Products



**In today's
technology-led
environment, M&E
companies of all
shapes and sizes
face compounding
challenges like
never before.**

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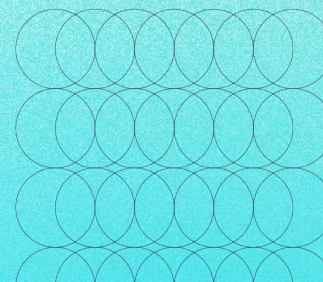
FROM OUTSIDE

**User segments
Personalization
Getting started
Change & pace
Market pressure**

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FROM INSIDE

**Infrastructure
Data
Team & talent
Innovation
Scale**





Intelligent products offer an ecosystem of integrated capabilities working together to continuously create more powerful, meaningful, and performant products over time and at scale.



Products ≠ Intelligent Products

PRODUCTS

Rule-based logic and calculations
Limited personalization
Do what they are programmed to do
Map to specific processes
Cause-and-effect relationship
Experience limited to coded features

INTELLIGENT PRODUCTS

Self-taught logic and limitless calculations
Deep personalization
Learns from environment & user(s)
Informs new processes & efficiencies
Adaptive relationship
Automated experience improvements

Machine learning, artificial intelligence, and automation are transforming the way we work.

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Delight users with just-right experiences



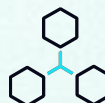
Empower people to do what they do best



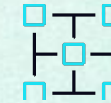
Adapt & scale with data instead of release cycles



Blur physical and digital worlds with real-time insight



Improve the quality and value of enterprise data



Create the foundation for high-quality, high-velocity, and highly scalable solutions

Achieving ML maturity with intelligent products

Companies everywhere have heeded the call to bring Machine Learning (ML) into their products and experiences. Unfortunately, many struggle to realize value, often due to the slow and tedious nature of getting new models into production.

Together, using our proven approach to MLOps, we can shorten the time from concept to production from months to weeks, or even days. And in the process, operationalize mature intelligent product building for future undertakings—and greater, more immediate value.



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The **journey** to intelligence

FEATURES

Early-Maturity: Test what intelligence can do by adding it to a small part of the experience.

PROCESSES

Mid-Maturity: Intelligence and automation are added to areas like transforming workflows to reduce steps.

ECOSYSTEMS

Advanced Maturity: The culmination of technology, intelligence, experience, and operations working as one.



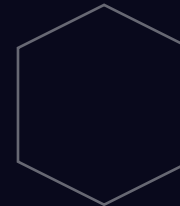
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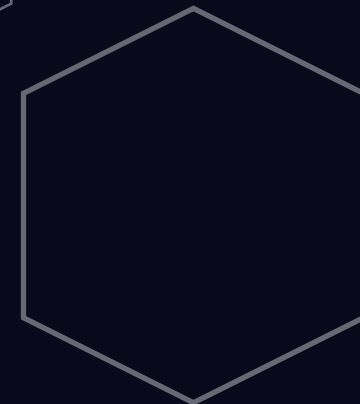
ADVANCED



Building intelligent products



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The four connected elements of intelligent products

I. Technology

Upgraded and up-leveled systems and cloud-native infrastructure designed to support current and future needs.

II. Intelligence

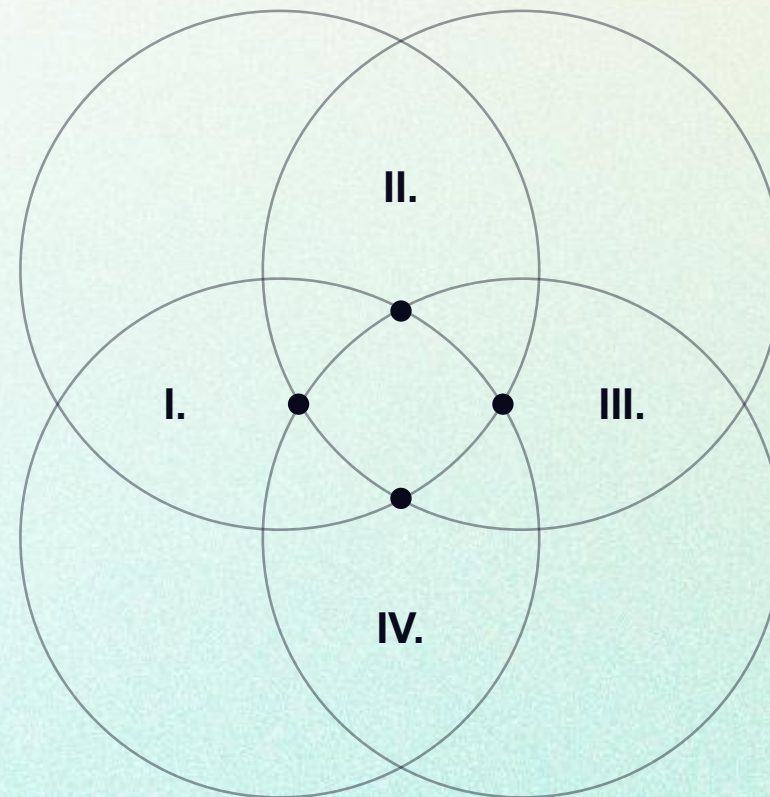
Data processed by ML models and predictive analytics determines and delivers the most relevant experiences.

III. Experiences

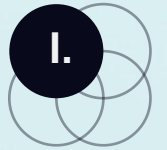
Products designed with intent to understand, plan, and deliver what an experience needs to be to delight users.

IV. Operations

Updated team and product approach to get products out quickly and seamlessly with continuous updates along the way.



I. Technology



CLOUD-NATIVE HORSEPOWER

World-class partnerships and expertise in AWS, Azure, and GCP drive infinitely scalable and powerful cloud-native solutions, fit for your intelligent ecosystem.

AUTOMATION & SECURITY

An automation strategy is needed, and includes CI/CD tooling, infrastructure, quality engineering, security scanning & industry compliances such as NIST SP800-171, CIS Controls, and IR 8259A.

FUTURE—PROOF ARCHITECTURE

A technical architecture must define the vision for a product and include an implementation plan as well as future-state concerns such as scalability, maintainability, and reliability.

IoT

Data collected from any number of sensors & inputs provide the ability to interpret data on an IOT device or similar, for management and summation of real-time ML results.

II. Intelligence



CONTINUOUS QUALITY DATA COLLECTION

The more complete the data, the more likely algorithms can find patterns and maximize performance. Collection should be continuous, so that the newest is ingested in ever-growing quantities.

CLOUD DATA STRUCTURE

Data must be structured, validated, and easily accessible using cloud services in a modern cloud data platform, making sure to implement data architecture best practices.

USER ANNOTATIONS

A well-planned data annotation strategy is key. Many algorithms require manual or semi-automated annotations, where crowd-sourcing can help train algorithms for real world edge cases.

ROBUST MLOPS PATTERNS

A robust MLOps pattern reduces manual errors, enforces reproducibility, and dramatically speeds productization while reducing technical overhead and rework involved.

III. Experiences



FOCUS ON PEOPLE

Intelligent products address everyone in their path to value, from data scientists who support the team to business leaders who inform learning goals.

ITERATIVE INSIGHTS

Understanding the insights necessary at each step of the process allows us to iterate and continually refine, delivering value faster, without analysis paralysis.

SEEABLE SOLUTIONS

Once we're confident we're focused in the right places, we can bring in visual tools to target our effort. Experience artifacts make navigating the ecosystem easy and visual.

DECONSTRUCTING VALUE

By separating value into its different components and ensuring everyone's needs are met, we're establishing holistic solutions that audiences find useful, usable, and desirable.

IV. Operations



CONTINUOUS PRODUCT LIFECYCLE

Intelligent products are continuously defining business goals, framing problems, collecting and transforming data, running experiments, validating models, developing pipelines, deploying and repeating based on fresh insight.

MODERN PRODUCT MINDSET

Harnessing a multi-disciplinary, modern product mindset is key to building, maintaining, and operating intelligent products effectively and at scale. This mindset, combined with a modern MLOps approach, is core to ongoing success in intelligence.

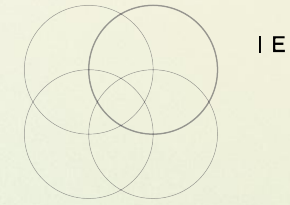
DISSOLVING SILOES

It's critical to break down organizational siloes and create a cohesive, creative, and nimble delivery team. This team will work across the org with stakeholders representing different capabilities at a variety of levels.

BROADER BUSINESS ALIGNMENT

As human needs and business goals evolve, the intelligence within products needs to change too. Intelligent product operations ensure technology can deliver at the speed and quality of an organization's ambitions.

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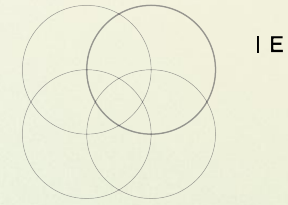
Common use cases



- Experience personalization
- Recommendation engines
- Customer service & support automation
- Logistics & pricing optimization
- Computer perception



- Predictive maintenance & analytics
- Fraud & anomaly detection
- Decision support & smart notifications
- Data & insight distillation
- Knowledge worker efficiency



M&E common application...



Recommendation Engines

- Content
- Collaborative
- Individualized Personalization



Content & Game Generation

- Up-sampling, SuperRes, & Texturing
- Augmented Alteration
- Creation of media trailers, ads, and games

Audio-Visual Entity Recognition

- Object Detection
- Object tagging & Scene Selection
- Linking to storefront

