



DATA-DRIVEN TRIUMPH

UNLEASHING AI'S POTENTIAL FOR ENTERPRISE SUCCESS



Terry Dorsey

Sr. Data Architect & Evangelist for North America Denodo

MACC OVERVIEW

The Midwest Architecture Community Collaboration's (MACC) purpose is to bring all domains of architecture together to share information and techniques of interest to all of us. It is our shared belief that through collaboration, we can better understand and promote the significance of architecture to business success.

Data-Driven Triumph

Unleashing AI's Potential for Enterprise Success

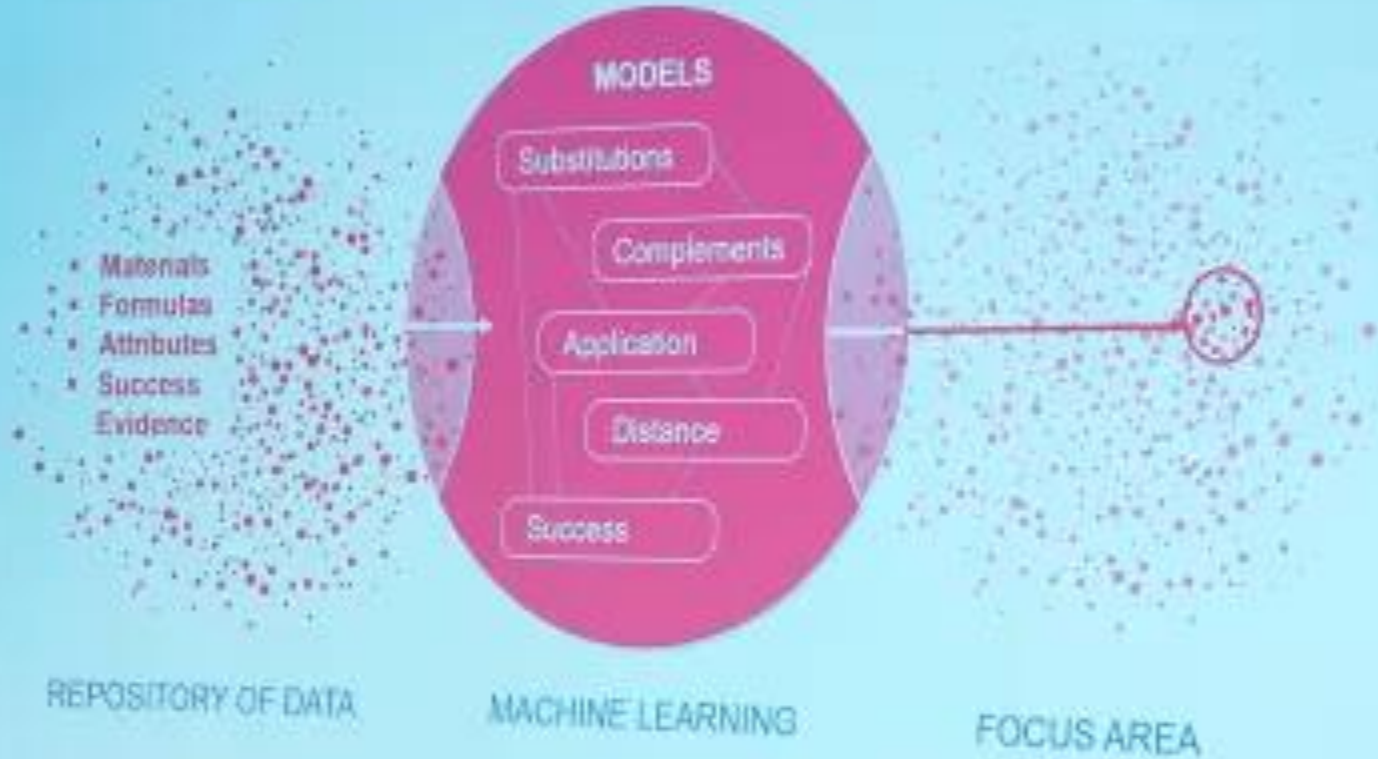
A Manufacturer's Story



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A NEW WAY OF WORKING



Let's begin with a story...

CPG Manufacturer

- ✓ A **Global** leader in **Flavor**
- ✓ **Manufactures** spices, seasonings, condiments and **flavor solutions**
- ✓ Over **100 years**
- ✓ Brands in **170** Countries and Territories
- ✓ Operations in **27** countries
- ✓ Over **30,000** raw materials from **80** countries
- ✓ **Global** security considerations





*It started with a **Vision***

- ✓ Increase **productivity**
- ✓ Accelerate **Innovation**
- ✓ **Enhance** Products
- ✓ **Better**
- ✓ **Faster**
- ✓ **Cost-Effective**

*There were **Questions***

- ? Can AI **create** formulas?
- ? Can it **learn** from experience?
- ? Can it **get better** over time?
- ? Can it **adhere** to **policies**?



"A pinch of paprika."

Could it **determine** what people would **like**?

Could it **create** things people would **like**?


Could it get **feedback** and **use** it?

Could it make products with **staying power**?

Would it pose a **threat** to developers?

Would it **empower** and **elevate** developers?

Would it be able to **work with** developers?

The background of the slide is a composite image. The top half shows a vast, colorful spiral galaxy with a bright core, set against a dark starry sky. The bottom half shows a view of Earth from space, with the curvature of the planet and the blue atmosphere visible. A dark semi-transparent rectangle is overlaid on the middle of the image, containing the text.

"There is no such thing as the **unknown**. Only things temporarily hidden, temporarily not understood."

James T. Kirk, "The Corbomite Maneuver"

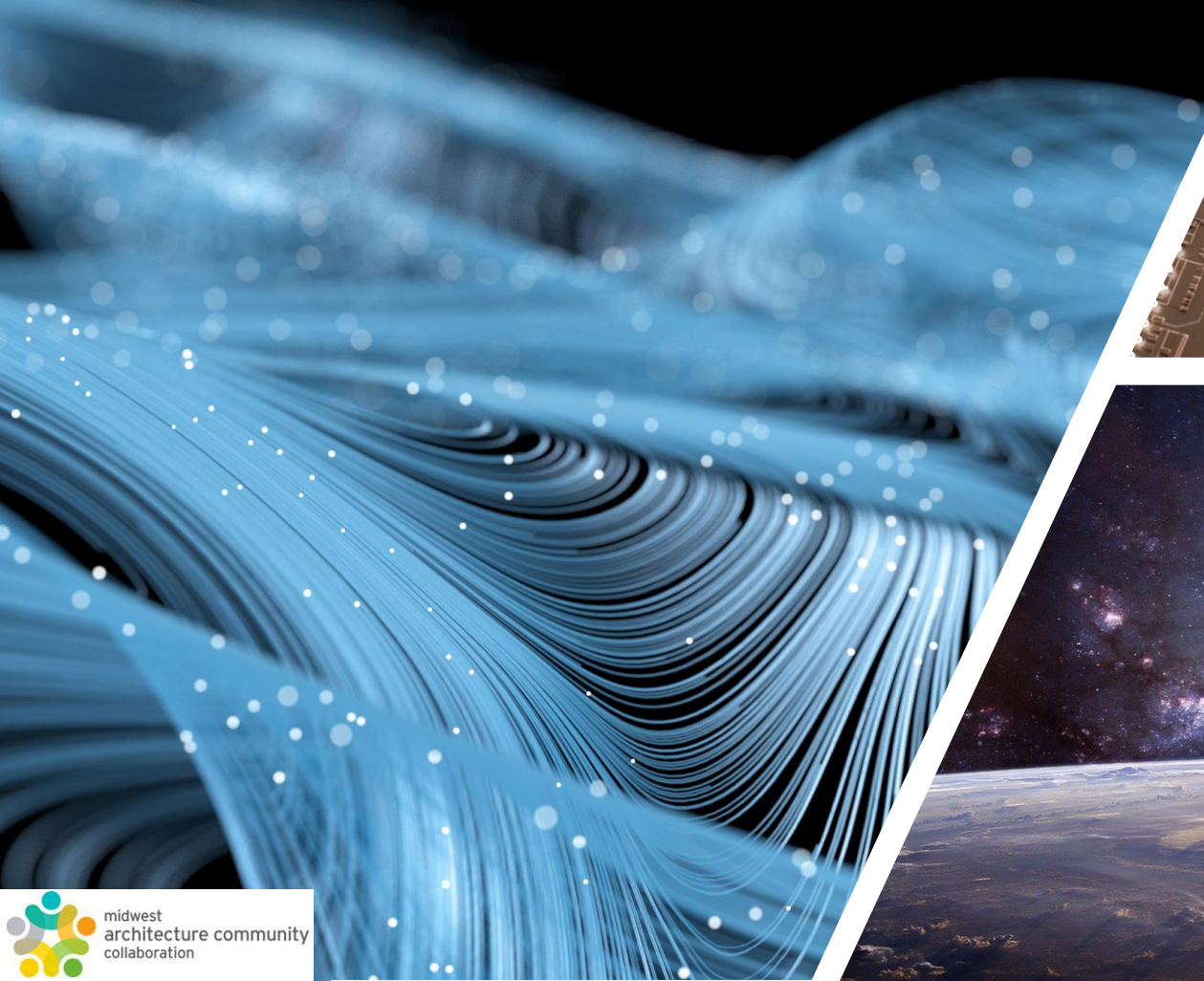
Security

- ✓ Intellectual Property
- ✓ Trade Secrets
- ✓ Masking Data for Machine Learning

Data Architecture

- Volatile Landscape
- Current Ineffective Data Architecture
- Need for a Modern Approach

Security



Unknown



Ways of Working

- Managing Resources
- Managing Scope
- Maintaining Pace



Data Architecture



Unknown



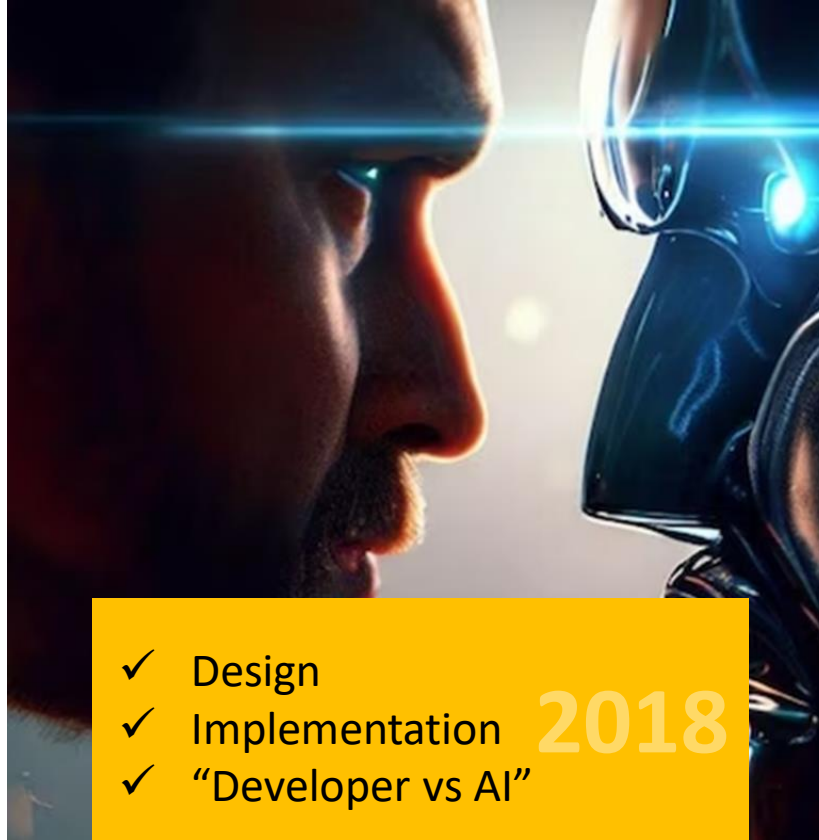
Security





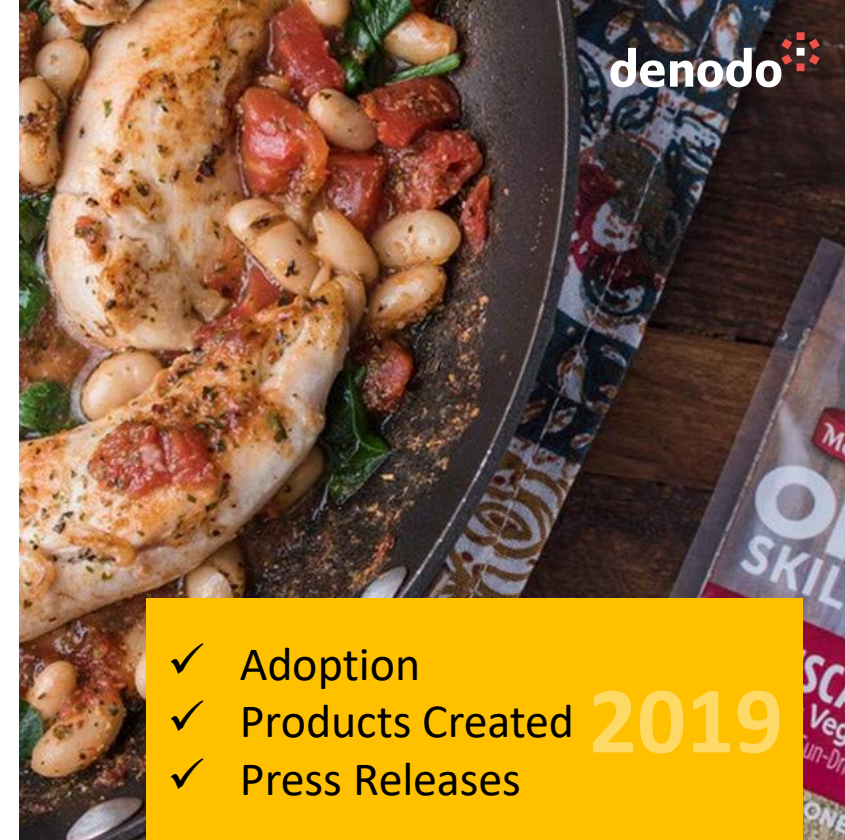
- ✓ Inception
- ✓ Funding
- ✓ Feasibility

2014



- ✓ Design
- ✓ Implementation
- ✓ "Developer vs AI"

2018



- ✓ Adoption
- ✓ Products Created
- ✓ Press Releases

2019

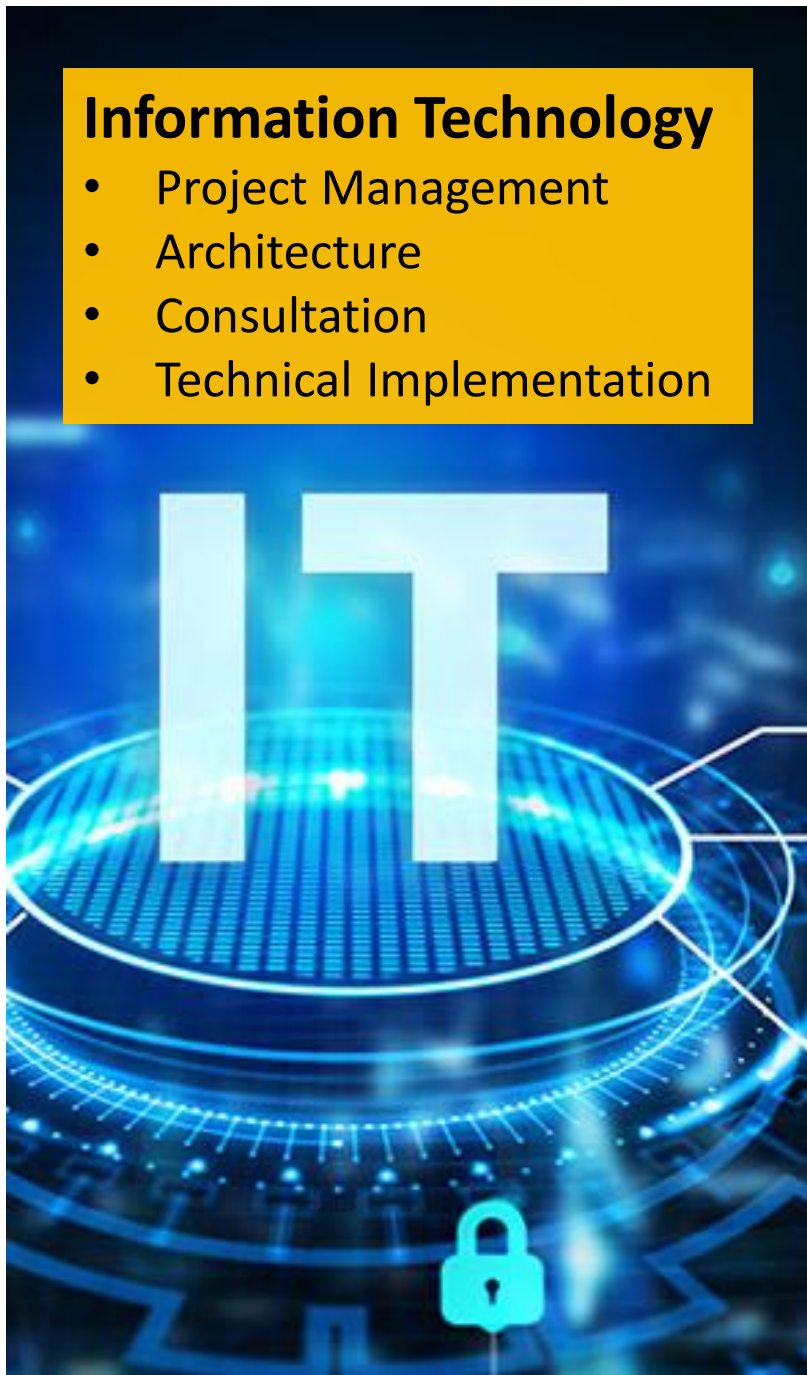
Timeline

- **2014** Ideation
- **2015** Feasibility
- **2016** Establish Data Architecture
- **2017** Start of Implementation
- **2018** AI in Production and in Use
- **2019** First Products are launched



Research & Development

- Development Expertise
- Business Processes
- End Users
- Change Management



Information Technology

- Project Management
- Architecture
- Consultation
- Technical Implementation



Research Scientists

- Data Science Expertise
- AI Specialization
- Application Development

Translating the business into information

Business Processes are Key

- What business processes matter?
- What data do they produce?
- What meaning can we infer?
- How do things look over time?



What do we **share**?
What do we **keep** in house?

What **data products** do I use?
What is the **structure**?

How do you **create** products?
How do you **know** when they are **good**?
What does it all **mean**?





Data Architecture

How we leveraged **Data Virtualization** to
succeed in **Artificial Intelligence**

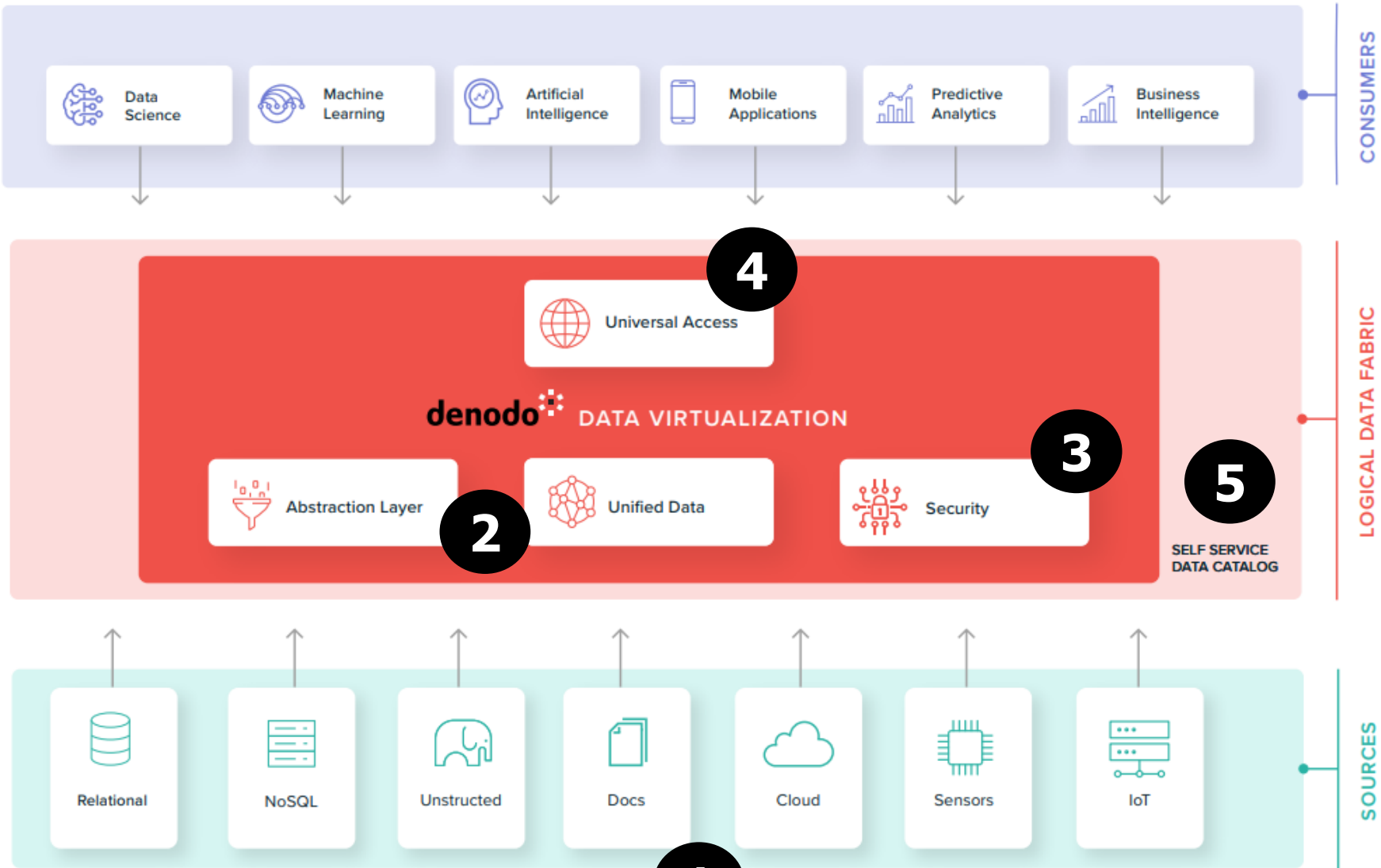


Exploring Data Virtualization



Data Virtualization capabilities offer an **access** and **delivery layer** that can serve as the foundation for the logical **data fabric**, which offers significant automation functions in the data management space. These include **automation** of data recommendations, data **quality**, data **governance** and **policy**, on top of the core **integration** functions of data virtualization.

--Gartner Assessing the Relevance of Data Virtualization in Modern Data Architectures, June 2021



- ✓ Get Data
- ✓ Make it Understandable
- ✓ Secure it
- ✓ Serve it Up
- ✓ Manage & Track it

1

CREATING DATA PRODUCTS FAST

- ✓ REST endpoints on demand
- ✓ Secure based on caller (*i.e., Anonymize, restrict, etc.*)
- ✓ 60 endpoints
- ✓ Stable despite changing landscape
- ✓ Single developer
- ✓ Close Feedback Loop

2017



Data and Quality

“**Cleanup** as the primary means of data quality is long **past** its **sell-by date**”

*Thomas C. Redman, **Harvard Business Review**
To Improve Data Quality, Start at the Source*

Principles

1. The system will learn as data gets better
2. You first need a system that learns
3. We can work in multiple streams

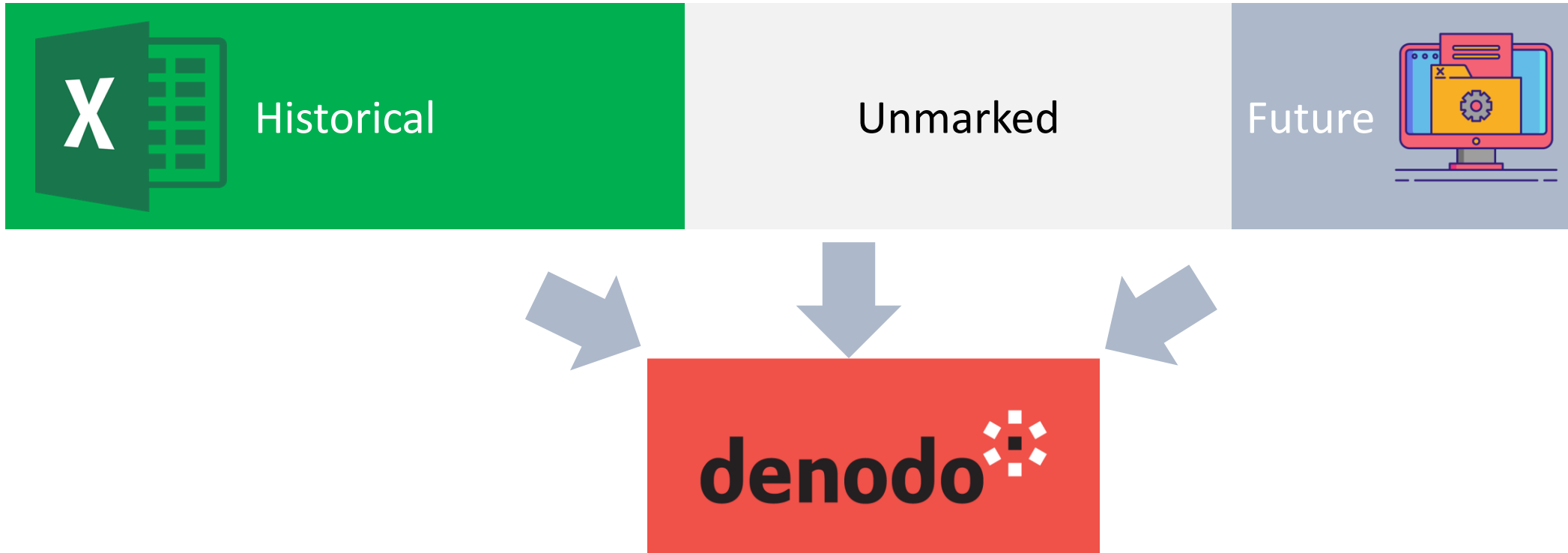
2

ADDRESS DATA REQUIREMENTS

- ✓ Manage Historical Updates
- ✓ Real-Time Reporting of Progress
- ✓ Business Managed via spreadsheets
- ✓ Joined with Production Data

2017

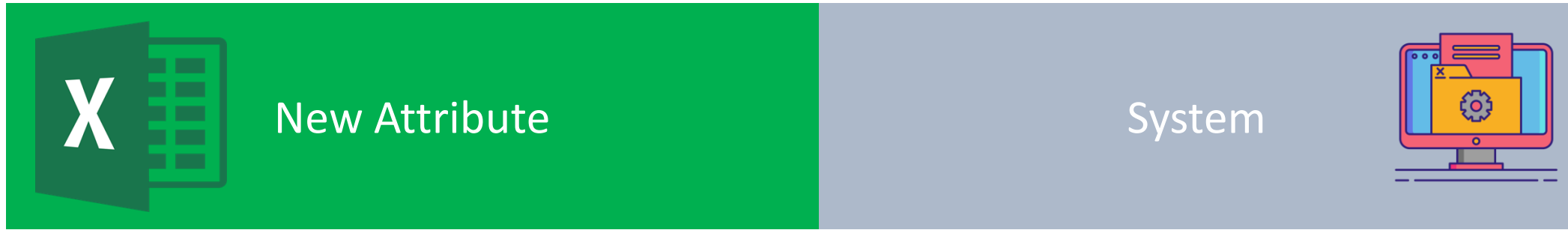
Manage Required Values



BUSINESS MANAGES DATA

- See which records are not marked
- See which records are different in historical vs system
- Extract unmarked records and supporting information
- Update historical
- Use view to update system once changes are in production

Prototype New Attributes



BUSINESS MANAGES DATA

- AI gets adjusted values
- Product Developers test outcomes
- Plan updates to System

APPLICATION DEVELOPMENT 3

- ✓ Internal API Economy
- ✓ Secure Write-Based APIs
- ✓ Business Controlled Security *(support for internal data firewalls)*
- ✓ IP Protection from Third Party Developers
- ✓ Independence from Database Vendor
- ✓ Efficiencies through Shared Products

2019

4

MEASURE MODEL SUCCESS

- ✓ Virtualized production suggestions
- ✓ Generated thousands for statistical analysis
- ✓ Modeled suggestions vs production data
- ✓ Analyzed behavior

2020

2021

5

DATA ANALYSIS AND ANALYTICS

- ✓ Data Science Modeling Autonomy
- ✓ AI Model Measurement
- ✓ Business Implementation of Metrics and KPIs
- ✓ Business Ad-hoc Analysis
- ✓ Enterprise Products in Data Catalog

SELF-SERVICE MODELING AND CONSUMPTION

- ✓ Business Modeling (*Multiple Domains*)
- ✓ Broaden Consumption beyond Visualization Tools
- ✓ Robust Security Implementation
- ✓ Extend Use of Data Catalog Exploration



2022

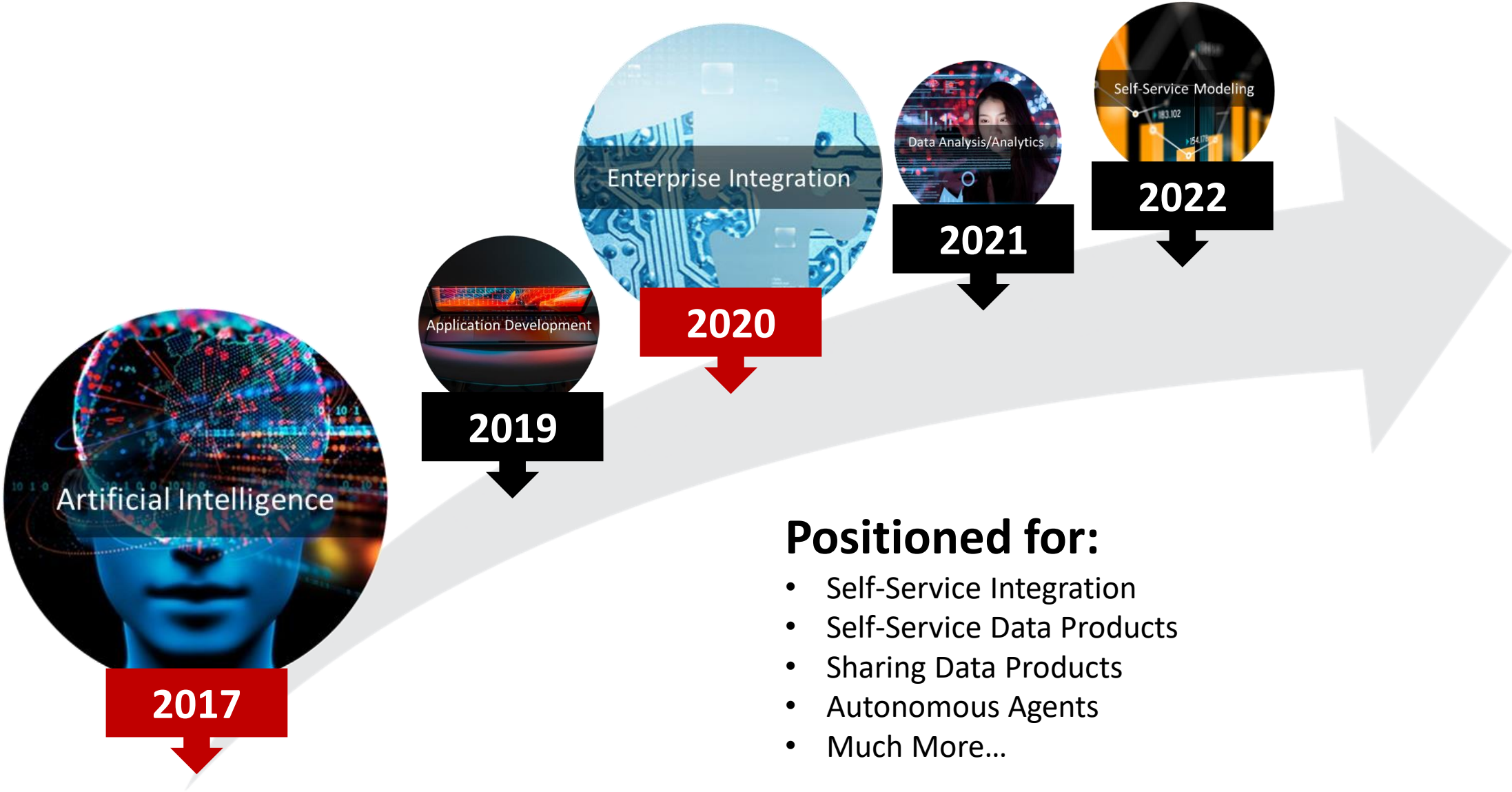
2020

Business Transformation

- **Visibility** to data
- **Understanding** Business Processes Better
- Better **data production**
- Better **outcomes**



Data Management Maturity



Positioned for:

- Self-Service Integration
- Self-Service Data Products
- Sharing Data Products
- Autonomous Agents
- Much More...

Summary

- Data **Products**
- **Iterative** Nature
- **Agility** and **Flexibility**
- Spark **Creativity** and **Innovation**
- Data **Virtualization**
 - ✓ needs
 - ✓ pace
 - ✓ flexibility



midwest
architecture community
collaboration

denodo 

Thanks!



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The Denodo logo consists of the word "denodo" in a bold, lowercase, sans-serif font. To the right of the text is a red icon composed of several small squares arranged in a circular pattern, with a larger black square in the center.