

Content as Linked Data (CaLD)

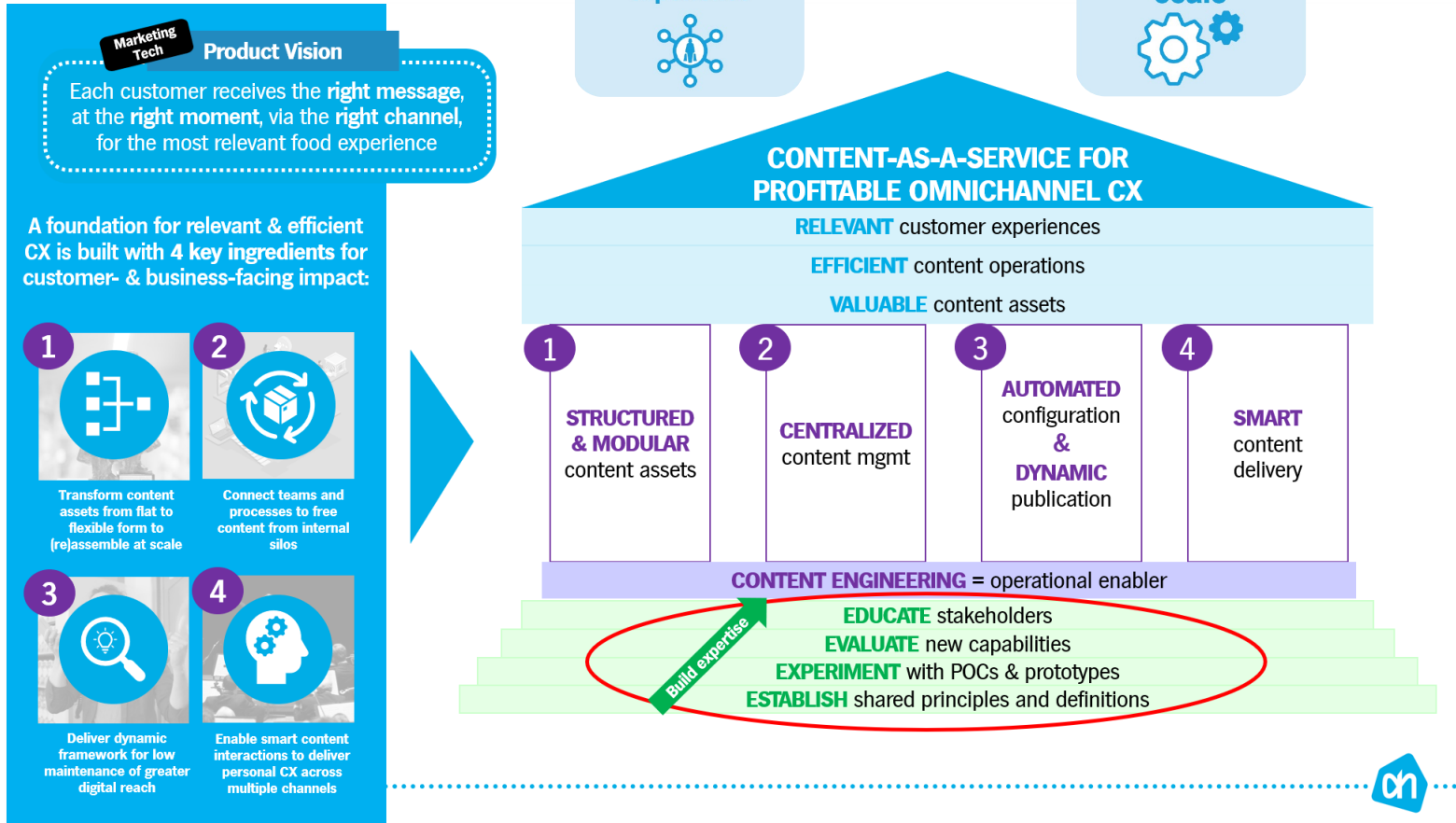
A semantic approach for managing unified digital experiences

Rafaëla Ellensburg @ Declarative Amsterdam 2024 conference
November 8th, 2024

Background | Content Engineering

Emerging discipline dedicated to achieving **strategic content maturity** where content is a key asset in our digital strategy, recognized for its complexity and impact on omnichannel CX

The plan



The Consultant



Rafaëla Ellensburg
Content Engineering Consultant

What I do

- Build domain and content models
- Metadata model for Content hub
- Omnichannel retail attributes initiative
- Guild Content Engineering
- Content Tech / CMS advisor

What is Content?

Any consumable,
interactive, or
experiential *information*
in formats such as text,
images, videos, audio,
books, artwork, etc.

What is Linked Data?

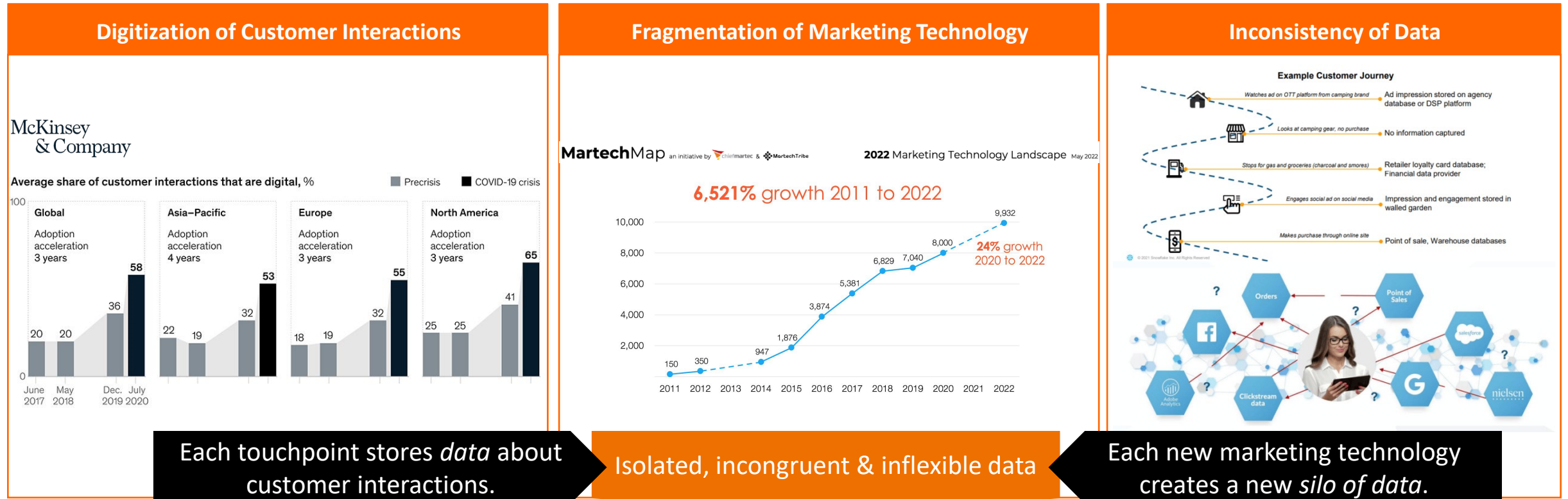
A method of publishing *structured, interconnected data*, enabling machine-readability, semantic queries and data integration across platforms.

What is Content as Linked Data?

A paradigm shift in content management, treating *content as a network of structured data points* to enhance content discoverability, accessibility and interoperability.

Why: Meaningful data is essential to create flexible customer experiences and use scale to our advantage

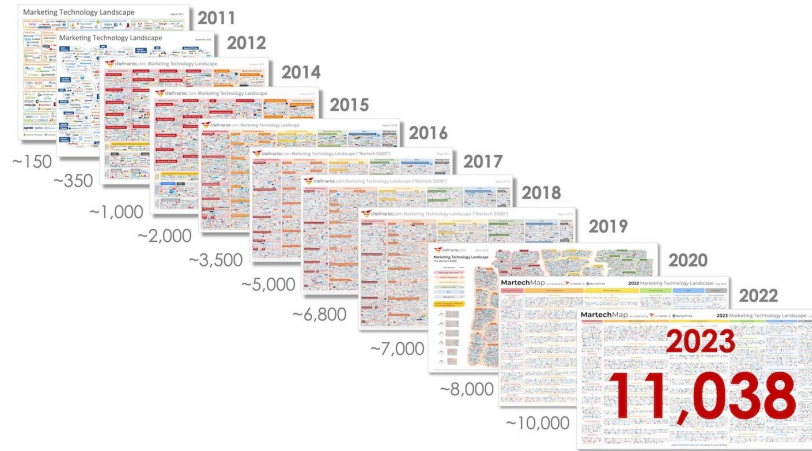
With the explosive rise of digital transformation, MarTech's fragmentation has also increased. This results in growing complexity to unify and integrate data across domains, creating serious liabilities due to significant efforts to streamline and reconcile data from disparate silos.



Less resources for business goals + Extended time-to-value & market + Inhibited analytical flexibility



Digitization of Customer Interactions



Fragmentation of Marketing Technology



Inconsistency of Data

How can we keep up with these challenges and stay leading with smooth digital customer experiences at scale, while reducing costs and complexity?



*There are no strings,
only things.*



Nietzsche x Rafaëla



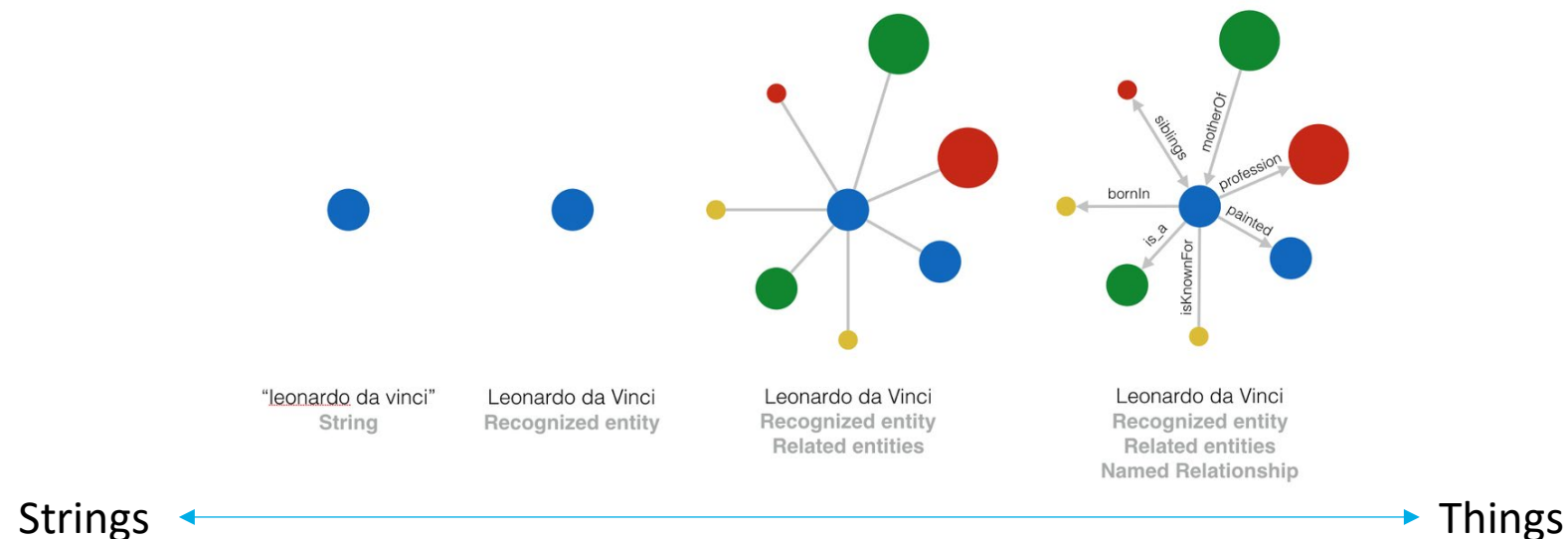
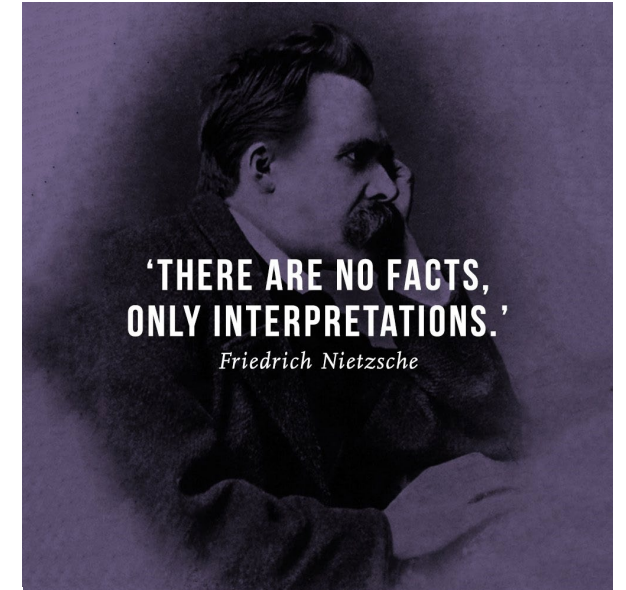
"THINGS, NOT STRINGS"



What Google meant with “Things, not strings” is what Nietzsche meant with “There are no facts, only interpretations”

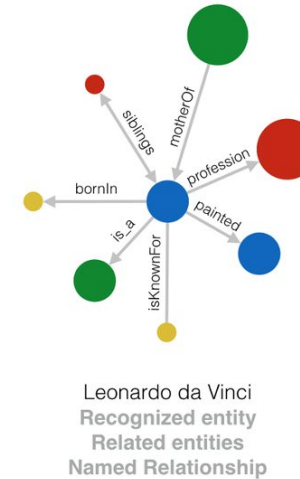
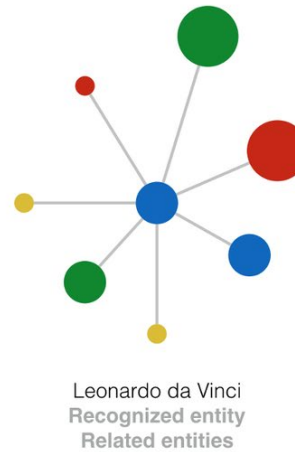
Content should be:

- **Contextual:** structured to convey context and intent
- **Interconnected:** linked to related information and concepts
- **Meaningful:** designed to communicate intent and meaning
- **Adaptable:** flexible enough to accommodate new insights
- **Dynamic:** managed as a living, evolving entity that scales



Content as Linked Data means content needs to be structured into meaningful data

Strings



Things

Content as:

- Text: static, isolated blocks of information
- Files: discrete units stored in silos
- Keywords: searchable by exact word matches
- Assets & components: independent, self-contained units

Content as:

- Entities: structured, identifiable concepts (with URIs & UIDs)
- Relationships: interconnected nodes of information
- Semantic networks: webs of meaning and context
- Knowledge graphs: dynamic, evolving bodies of information

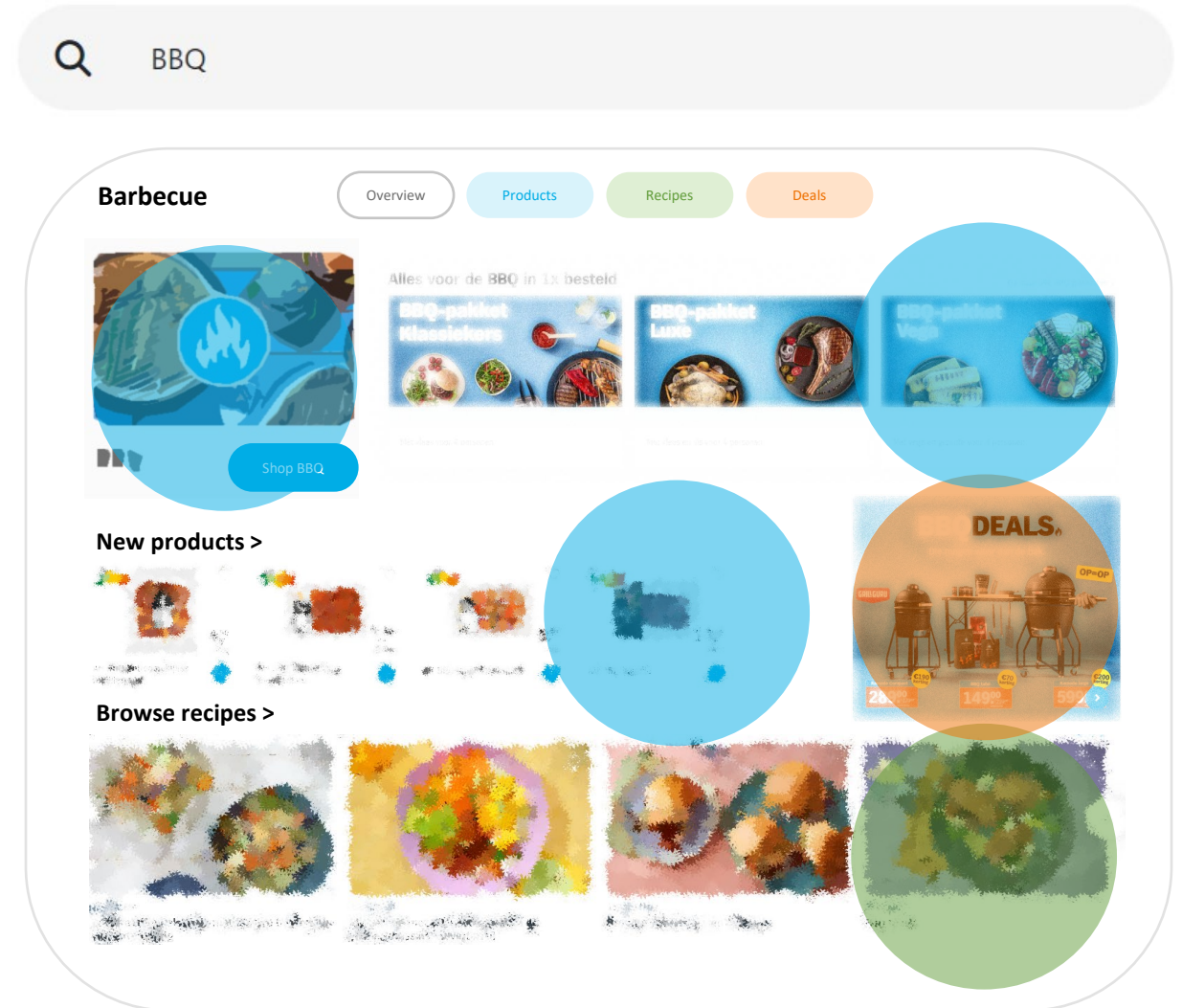
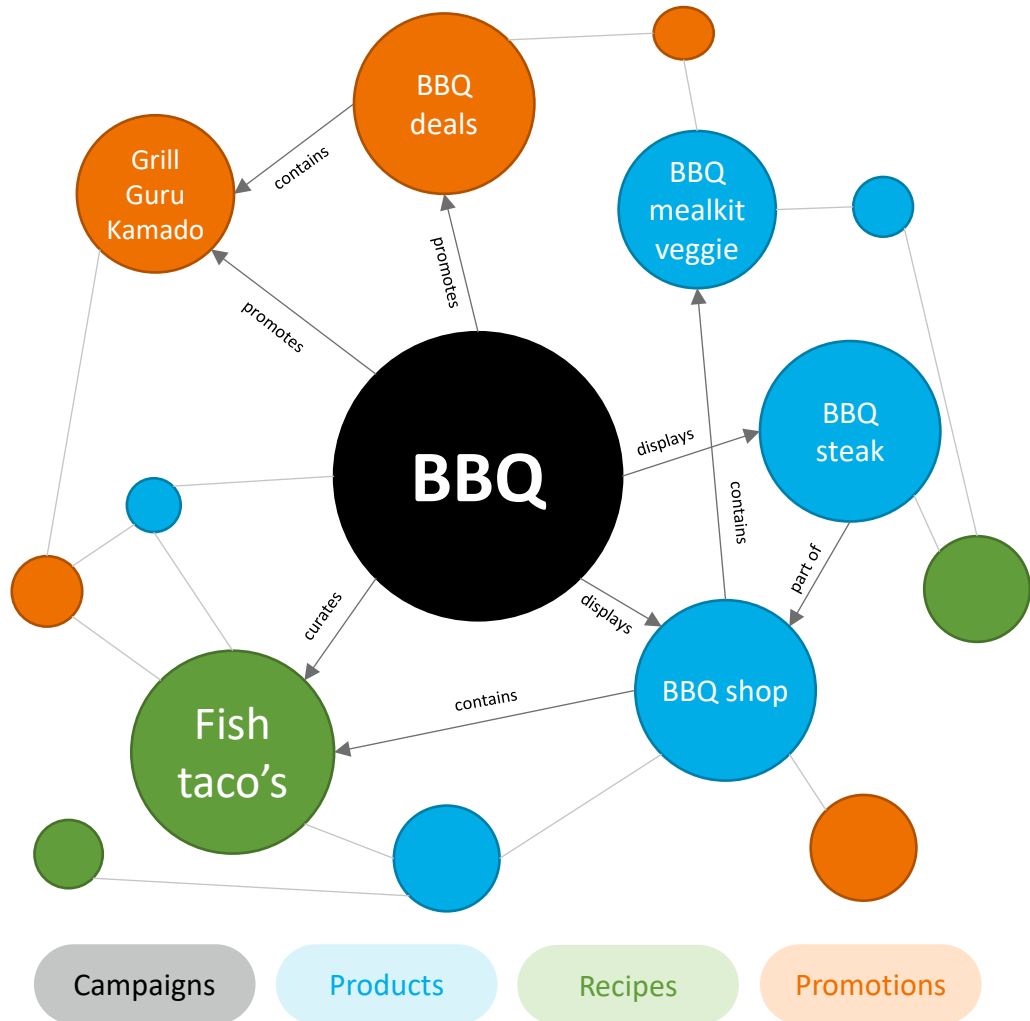


*Content as Linked Data =
Concepts, not content.*

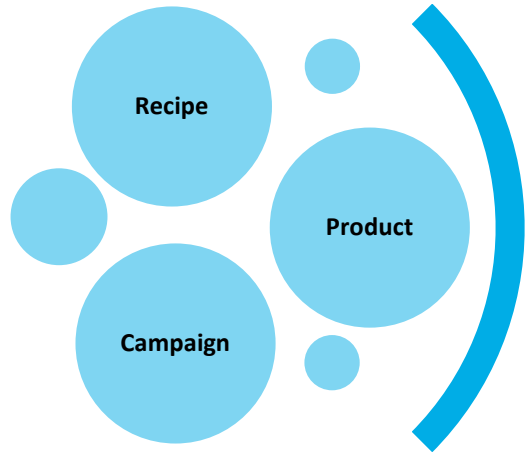


Why Content as Linked Data?

Use structured, interconnected content to offer **smooth CX** across channels and domains *at scale*



Translate low level data schemas to high level domain models to establish a uniform language for meaningful and consistent data

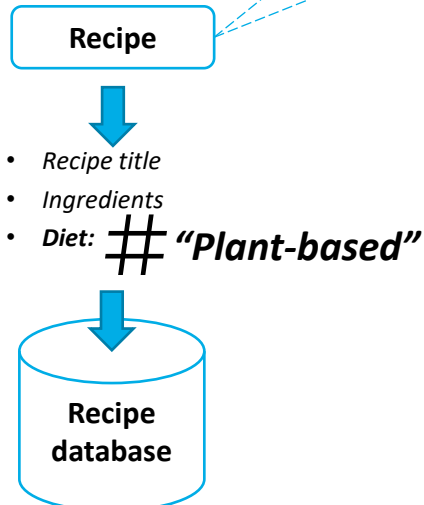
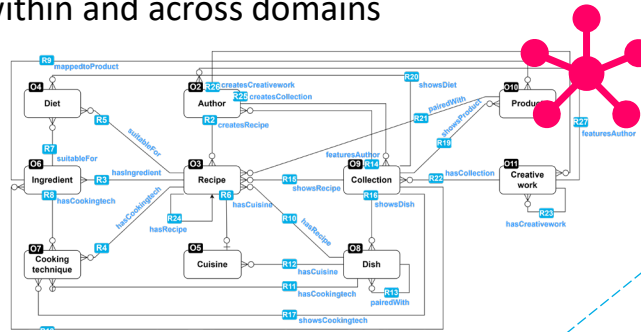


1. Semantic structure

- # = Data
- = Database
- = Schema
- = Concepts
- = Relationship
- = Normalization

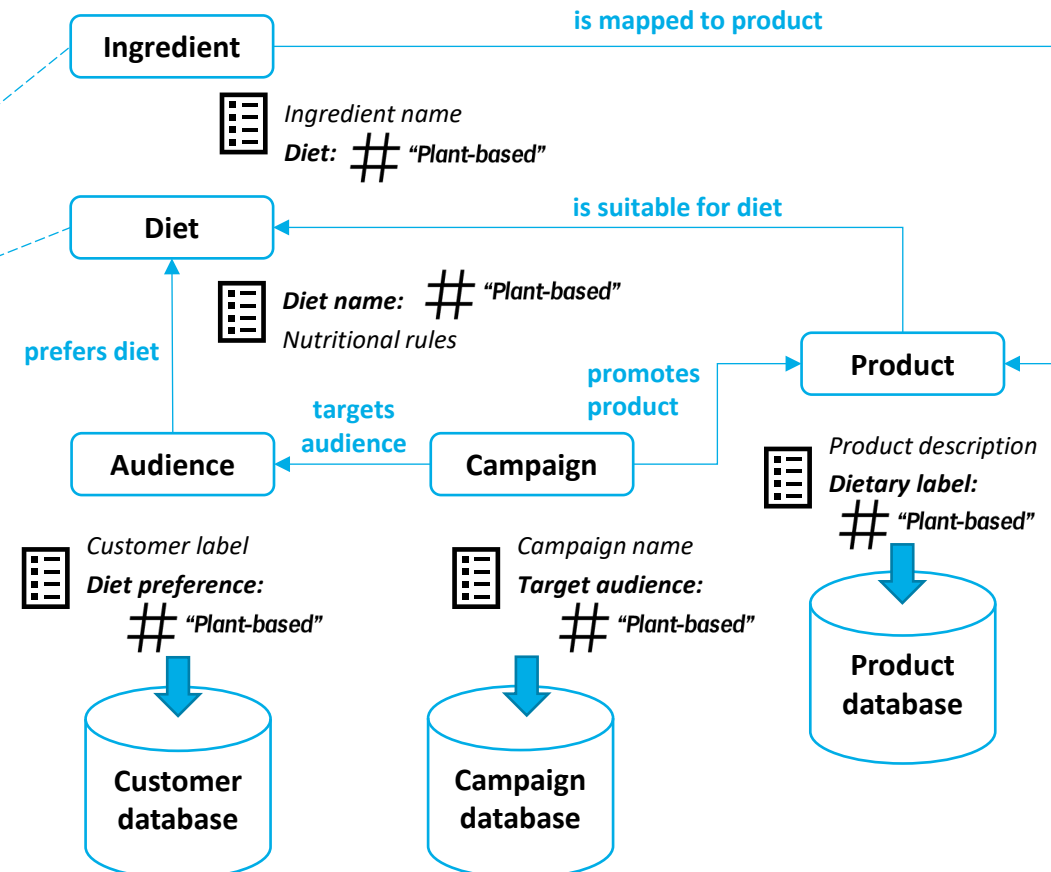
Create domain model

This gives us a high-level overview and semantic layer of concepts and relationships within and across domains



Normalize and relate data

This gives us a flexible data structure that is easy to understand and share between teams and systems



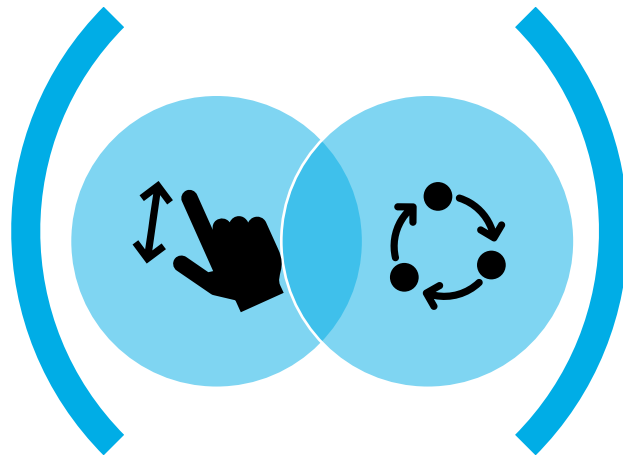
Integrate data from other domains to create a more unified view of the data, potentially leading to more tech convergence and less redundancy

Deepen level of data integration

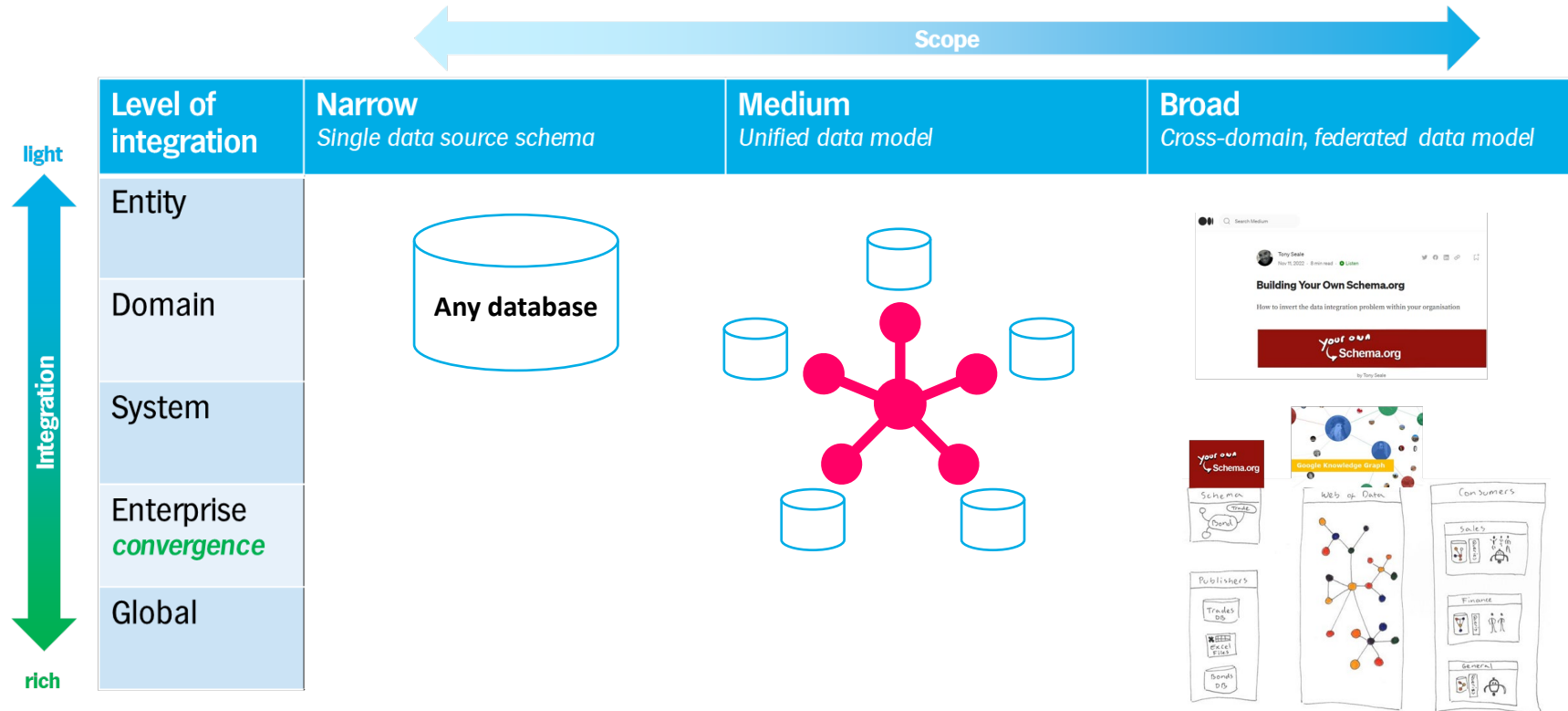
This gives us an intelligent two-way system-of-record that synchronizes data a range of data models instead of blindly pushing data one-way

Broaden scope of data models

This unifies data from several domains into a cross-domain model, which can be used to shape smooth customer experiences, and address common data redundancies



2. Scale



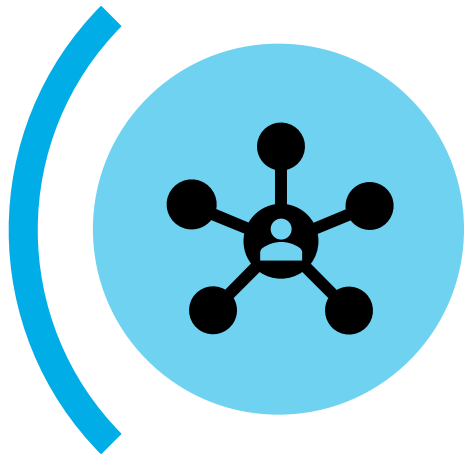
Activate smooth customer experiences & enable efficient business operations

Gather meaningful insights

By extracting information from various data sources and creating relationships between entities, a knowledge graph can give us better understanding through more context of the intent behind customer behavior

Orchestrate contextual decisions

In turn, this richer context helps us to enhance decisioning and orchestrate more relevant and useful content to increase customer engagement and satisfaction, which drives better business results



3. Smooth CX

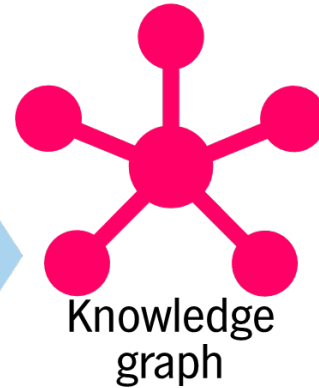


Scattered content, complex processes & disconnected domains



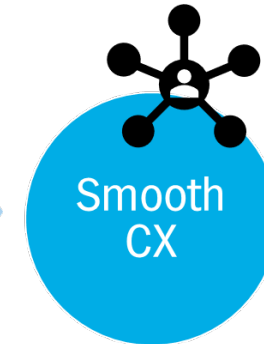
Input:

- **Structured data**, such as:
 - Databases, spreadsheets, APIs, RDF, CSV, etc.
- **Unstructured data**, such as:
 - Tekst, images, videos, etc.



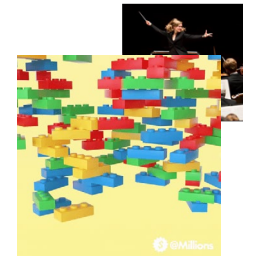
Processes:

- ❖ Data ingestion
- ❖ Data cleaning
- ❖ Entity extraction
- ❖ Relationship extraction
- ❖ Knowledge representation
- ❖ Knowledge inference
- ❖ Knowledge visualization



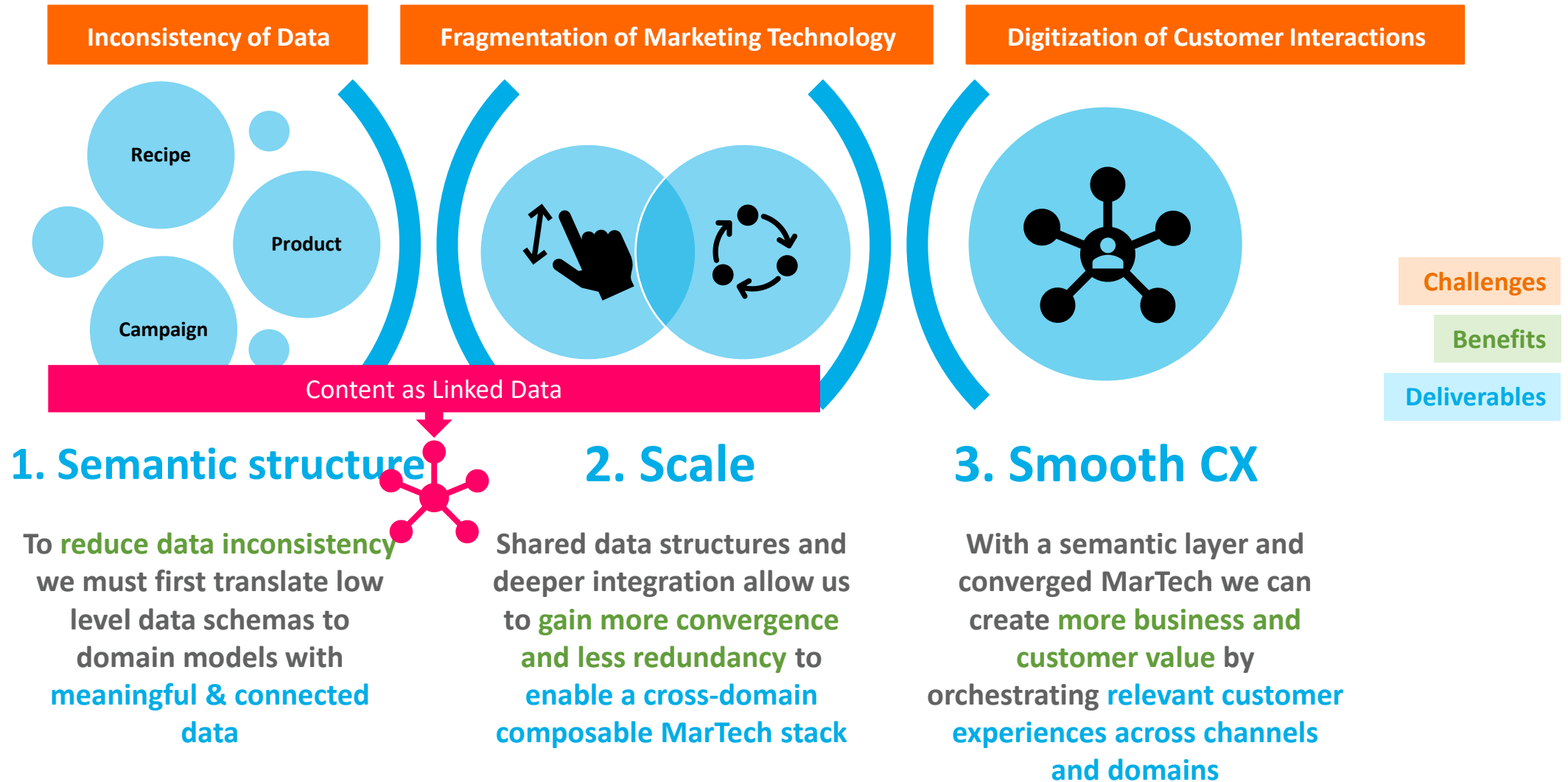
Output:

- **Meaningful insights & understanding of complex data relationships**
 - ✓ Entity recommendations (e.g. products, recipes, videos, etc.)
 - ✓ Semantic search
 - ✓ Personalized recommendations
 - ✓ Data visualization



Cross-domain orchestration for seamless CX

Linked data acts as the **connective contextual tissue** that holds content's data structure together as it scales and helps to process increasing complexity as business and customer demands change



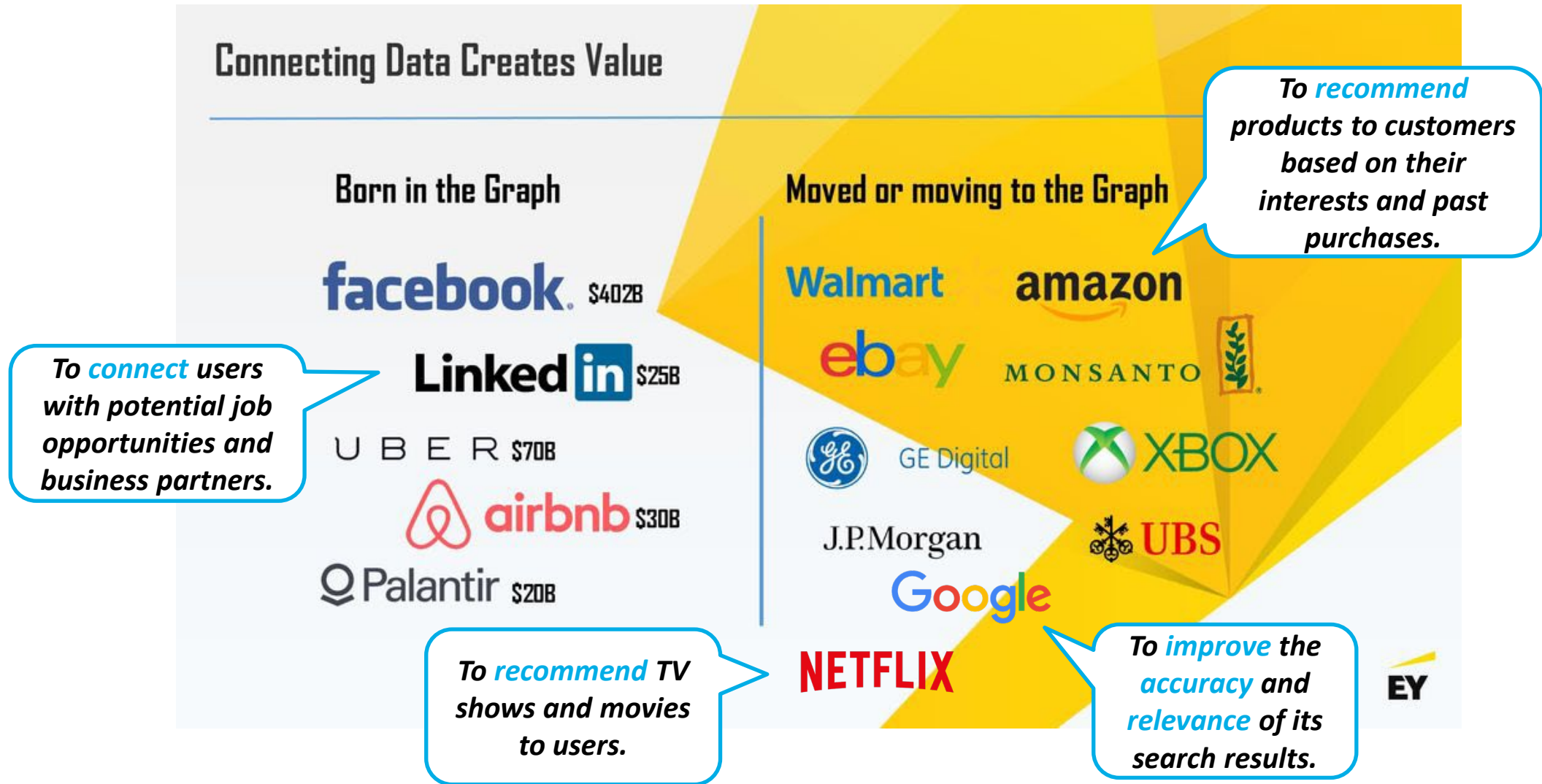
Content as Linked Data enables content capabilities such as navigation, search, discovery and personalization, not within 1 domain but across several domains

A few examples:

Navigation & exploration	<ul style="list-style-type: none">• Why: Flexible and intuitive navigation and exploration of complex, dynamic data.• How: By representing entities and their relationships as linked data.• <i>User POV: "I want to easily follow links and explore related concepts and ideas."</i>
Search & discovery	<ul style="list-style-type: none">• Why: Powerful and intelligent searching and discovery.• How: With standardized query language that can traverse linked data and extract specific pieces of information or insights.• <i>User POV: "I need to quickly find and access relevant information."</i>
Personalization & recommendation	<ul style="list-style-type: none">• Why: Rich and detailed representation of user preferences and interests, which can be used to personalize and tailor content to individual users.• How: By analyzing user interactions with semantically enriched content (and from external data sources, e.g. CDP).• <i>User POV: "I want to discover new, relevant and related content."</i>



Some of the largest Tech and Food companies already use Linked Data to help their business with new capabilities and their users with a better digital experience



Content as Linked Data

What's in it for you?

CaLD