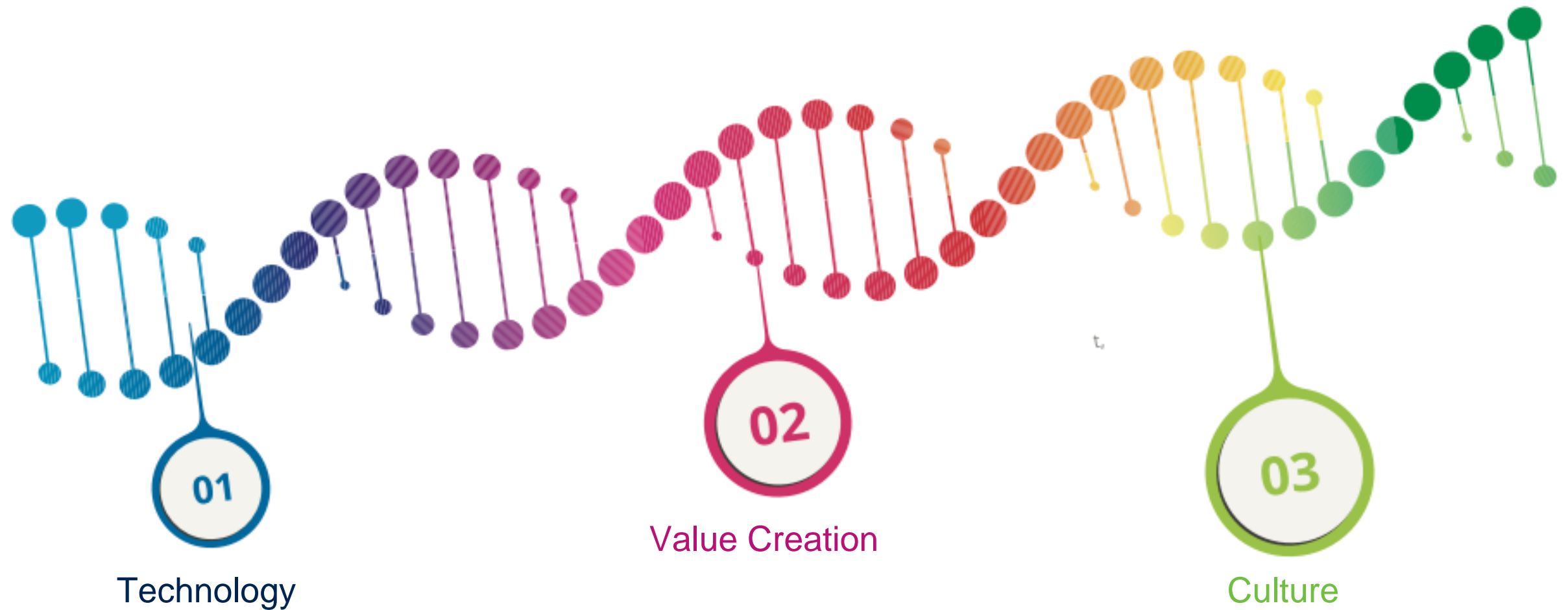




# What is Blockchain?

# DNA of Blockchain



It's a Matter of Trust.







**Ok...Start with Trust. Anything Else?!**

**Public vs. Private (is this just a shared ledger?)**

**Network Nodes**

**Tokens**

**Protocols**

**Consensus (mining complexity)**

**Scaling**

**Smart Contracts**

**Key Management**

**On-Chain vs. Off-Chain**

**Partial Ownership, ...**

# But #becraeful!

- *Garbage in, tamper-proof garbage forever*
- *Mapping real-world to digital*
- *Identifying things & people*
- *Scaling governance*
- *Legacy (i.e. all) data*





# Use Cases for Public Causes

*Aid Supply Management*

*Emergency response*

*Public Health Data Surveillance*

*Dangerous Substance Tracking*

*Death Certificate Exchange*

*Opioid Tracking*

*Population Health Management*

*Counterfeit Drug Tracking*

*Public Health Communication*

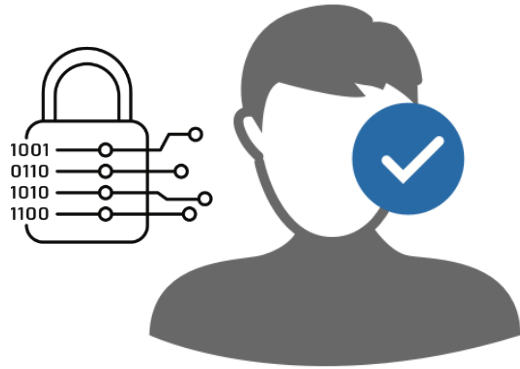
*Inventory Tracking*

*Inter-agency data exchange*

...



# So, Why Blockchain for Disaster Relief?



Establish  
Cryptographic Trust



Provide Transparency



Securely  
Exchange Information



Timely Information



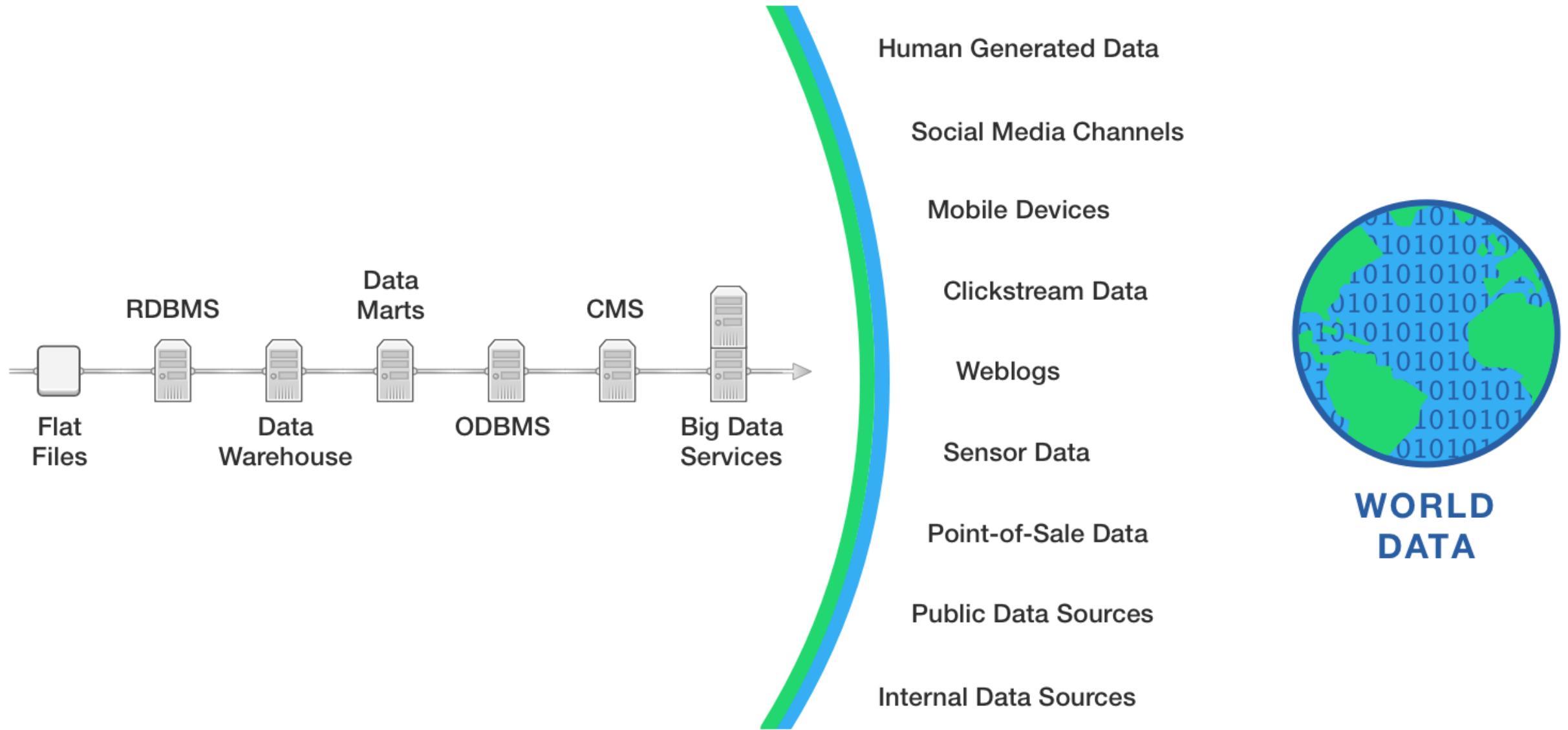
Cross Borders



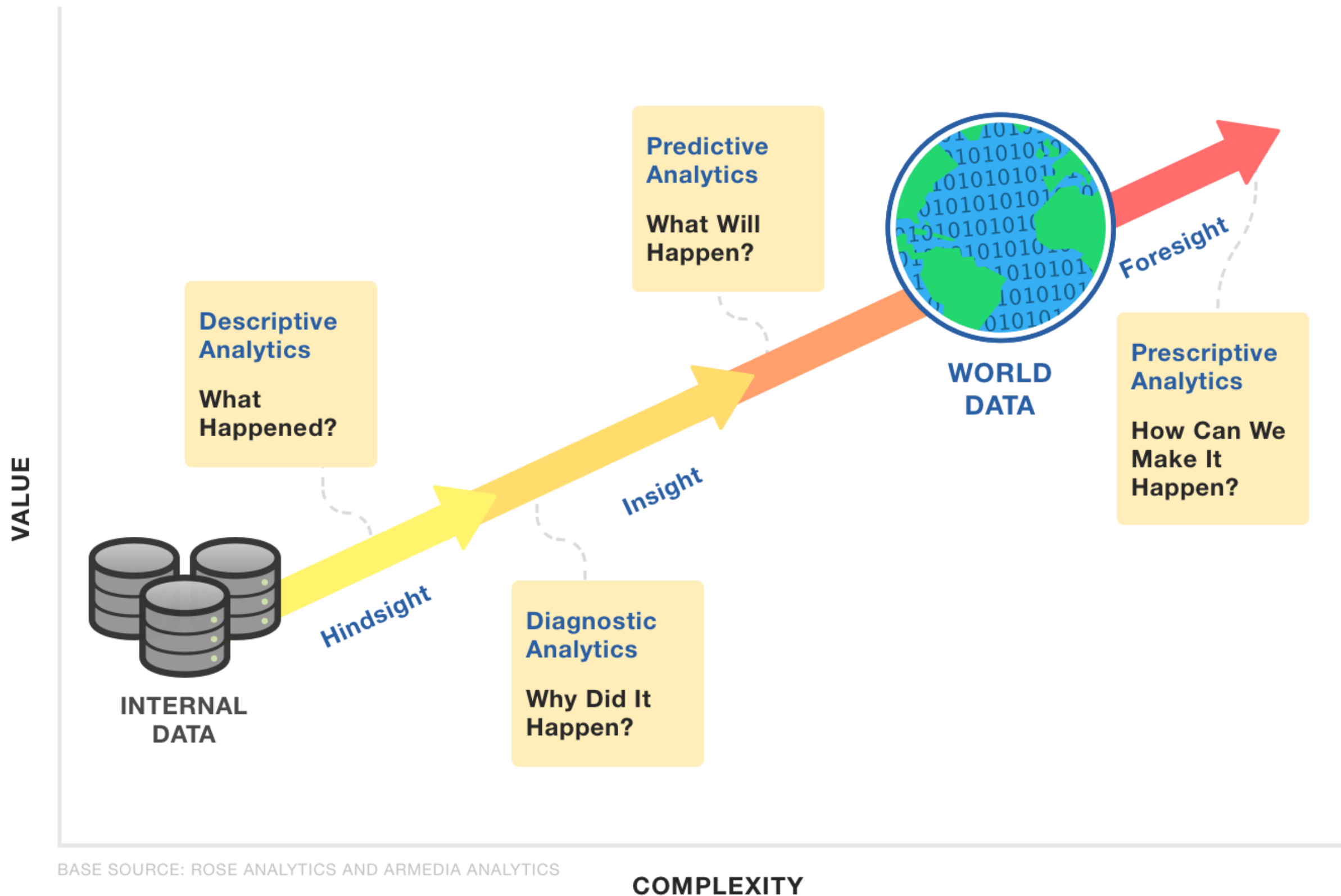
# Where is the Data?



# Getting to World Data

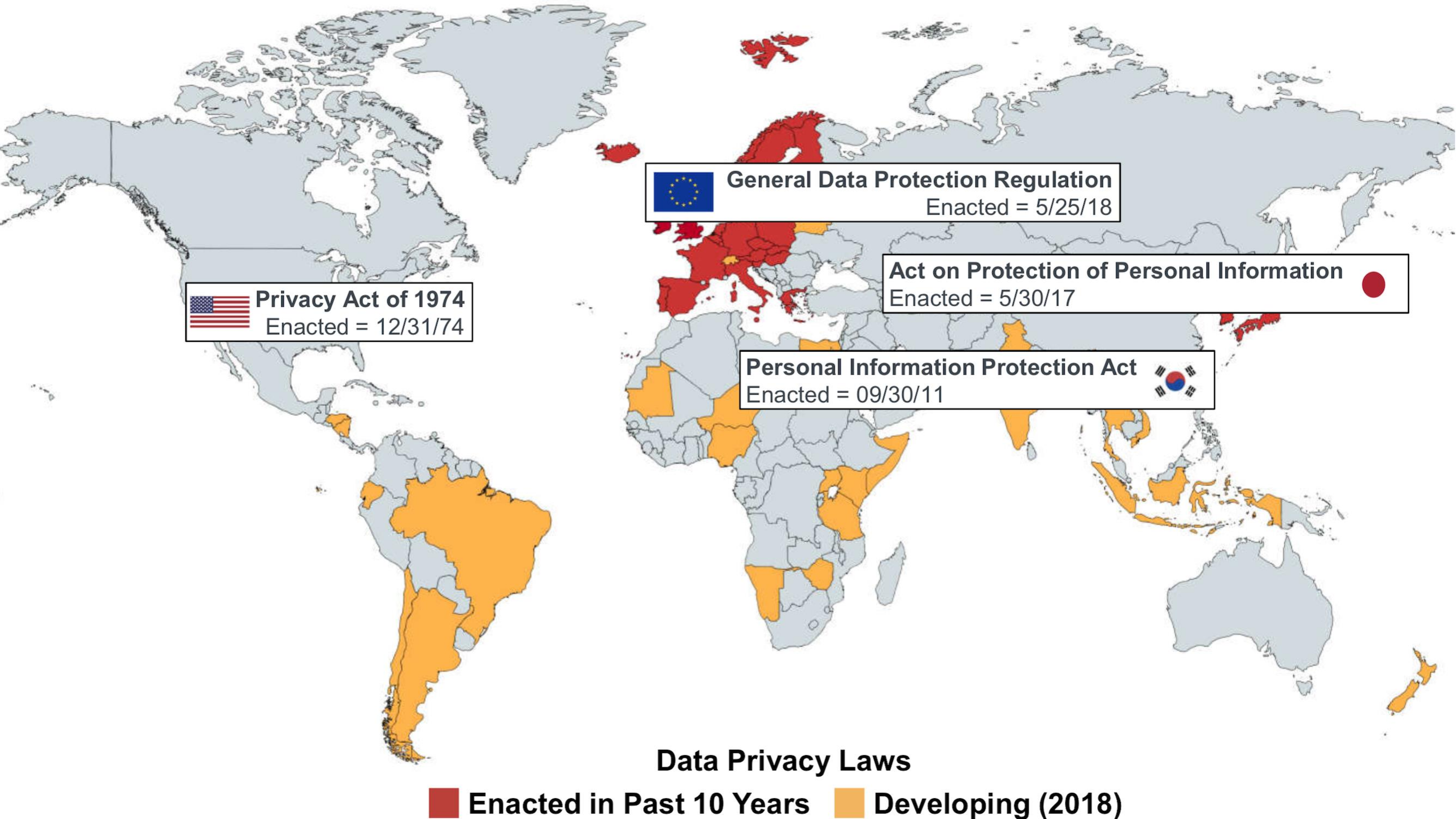


# Data Insight Continuum





# Asia | EU | Americas - Rising Regulatory Focus on Data Collection and Sharing





# Land Grab for Data



- *Data as currency*
- *Legacy data largely siloed and non-interoperable*
- *Open technology: “pipes” to connect data sources*



# It's bigger than Blockchain!



<http://bit.ly/SWThemePark>



# Thinking Theme Park...

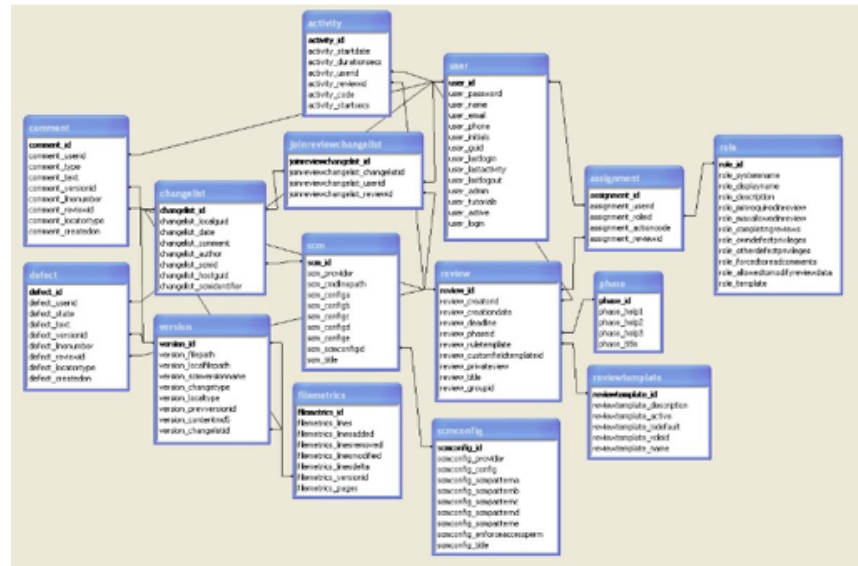


# Theme Park Layers





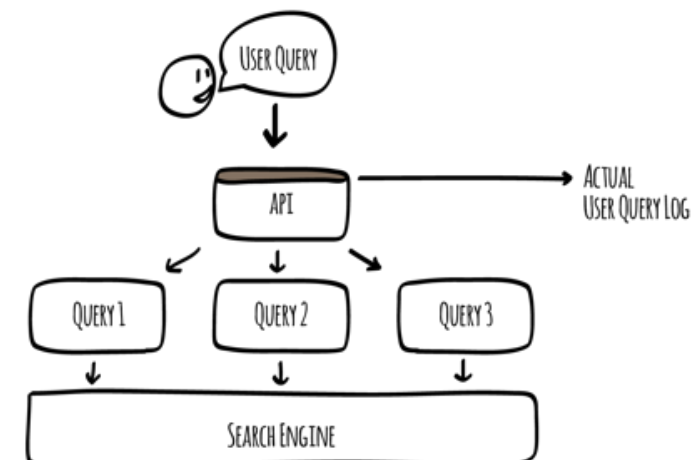
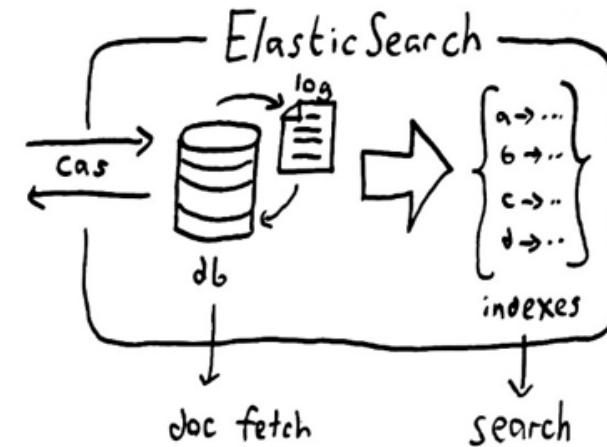
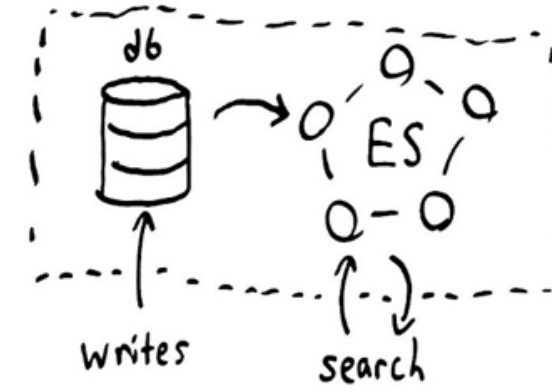
# De-siloing Data: Before >> After



```
USE [AdventureWorks]
SET STATISTICS IO ON
SELECT
    v.[VendorID]
    ,v.[Name]
    ,coalesce(c.[Title], '') + ' ' + c.[FirstName] + coalesce(' ' + c.[MiddleName], '') + ' ' + c.[LastName] + coalesce(' ' + c.[Suffix], '')
FROM [Purchasing].[Vendor] v
    INNER JOIN [Purchasing].[VendorContact] vc
    ON vc.[VendorID] = v.[VendorID]
    INNER JOIN [Person].[Contact] c
    ON c.[ContactID] = vc.[ContactID]
SET STATISTICS IO OFF
```

(156 row(s) affected)  
 Table 'Contact'. Scan count 0, logical reads 330, physical reads 0, read-ahead reads 0  
 Table 'VendorContact'. Scan count 104, logical reads 208, physical reads 0, read-ahead reads 0  
 Table 'Vendor'. Scan count 1, logical reads 4, physical reads 0, read-ahead reads 0

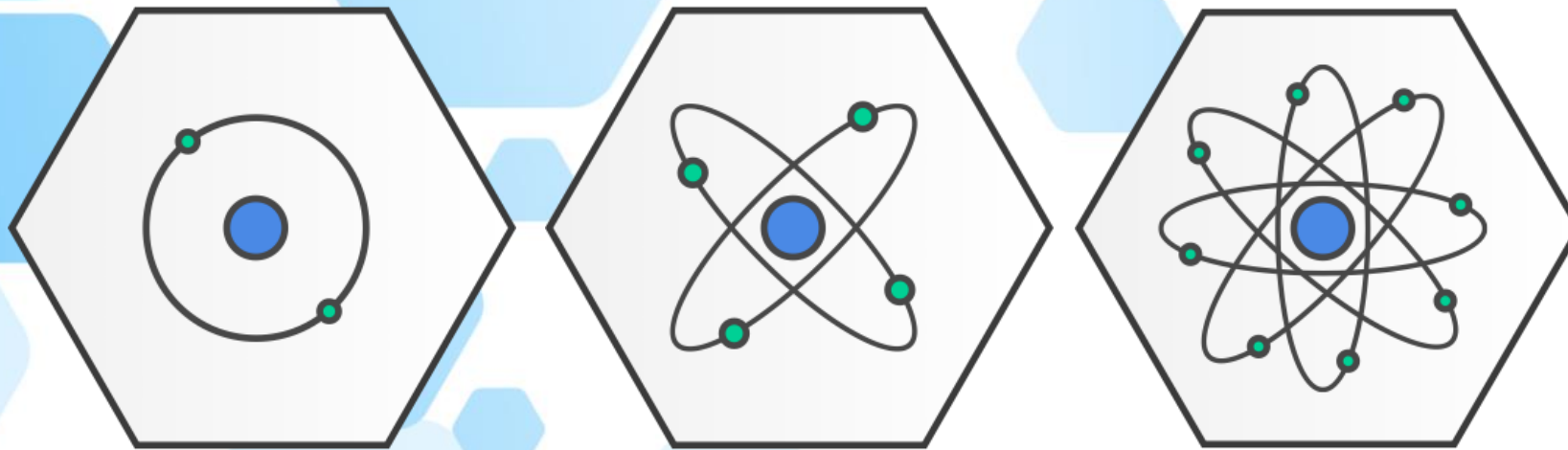
{Schemas, Views, SQL Queries}



{Data Types, Indexes, APIs}



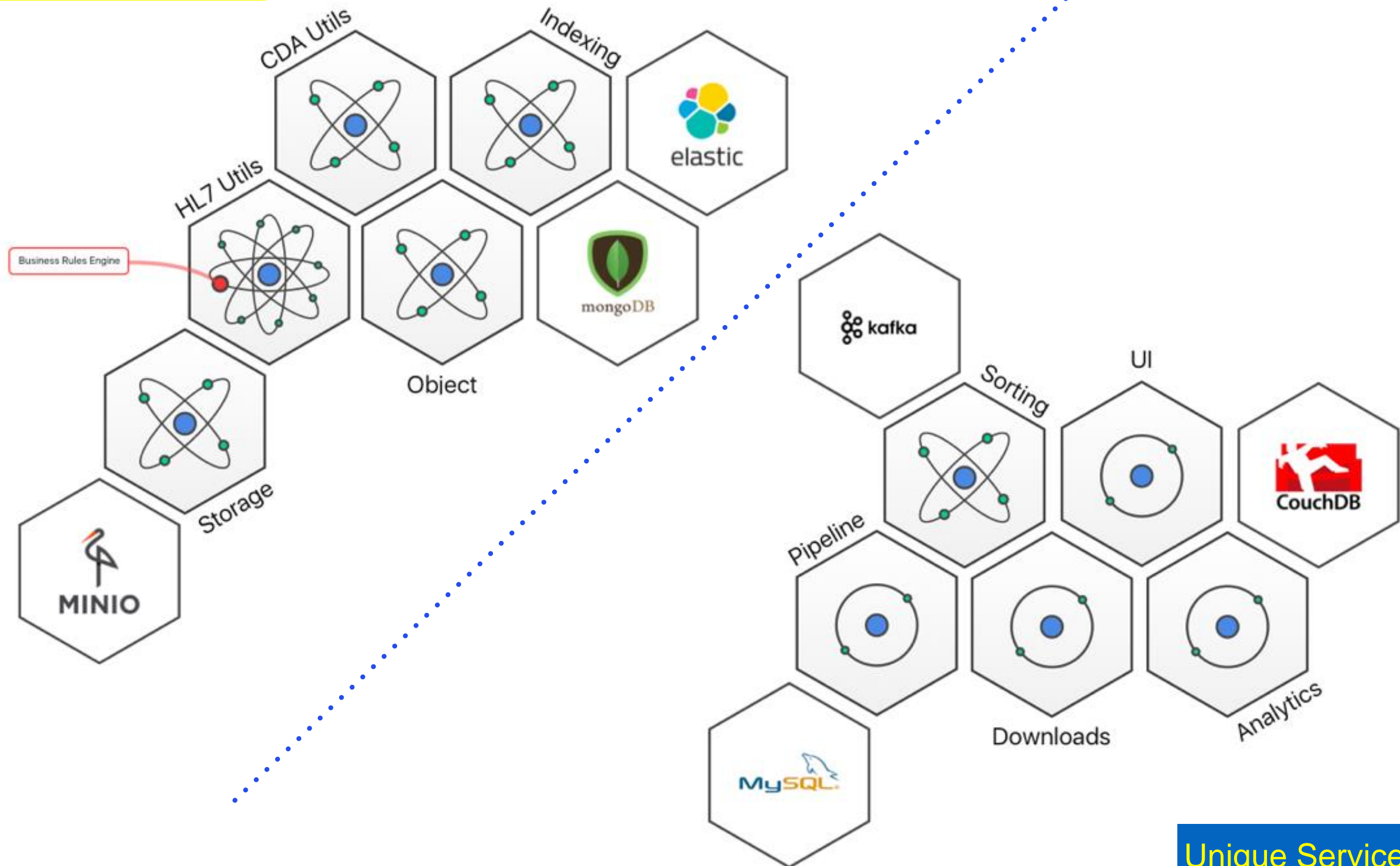
# Software Functions as Open APIs



*Microservices (atomic to multifunctional)*

# Building Software with Open APIs

Foundational Services  
(common to all apps)



Unique Services  
(specific to this one app)

# The World is Developing Open

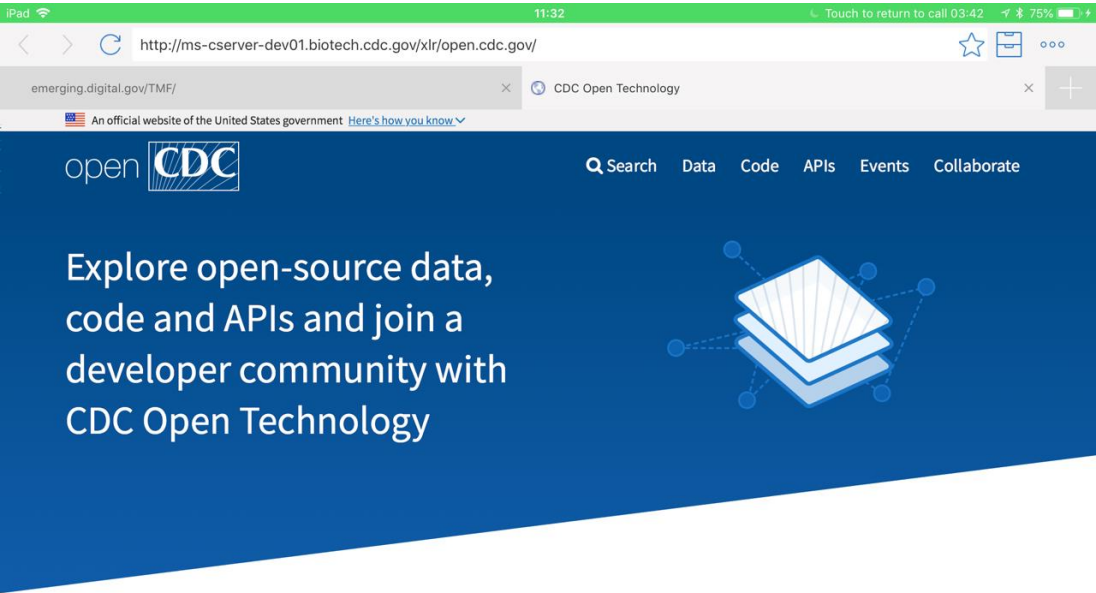
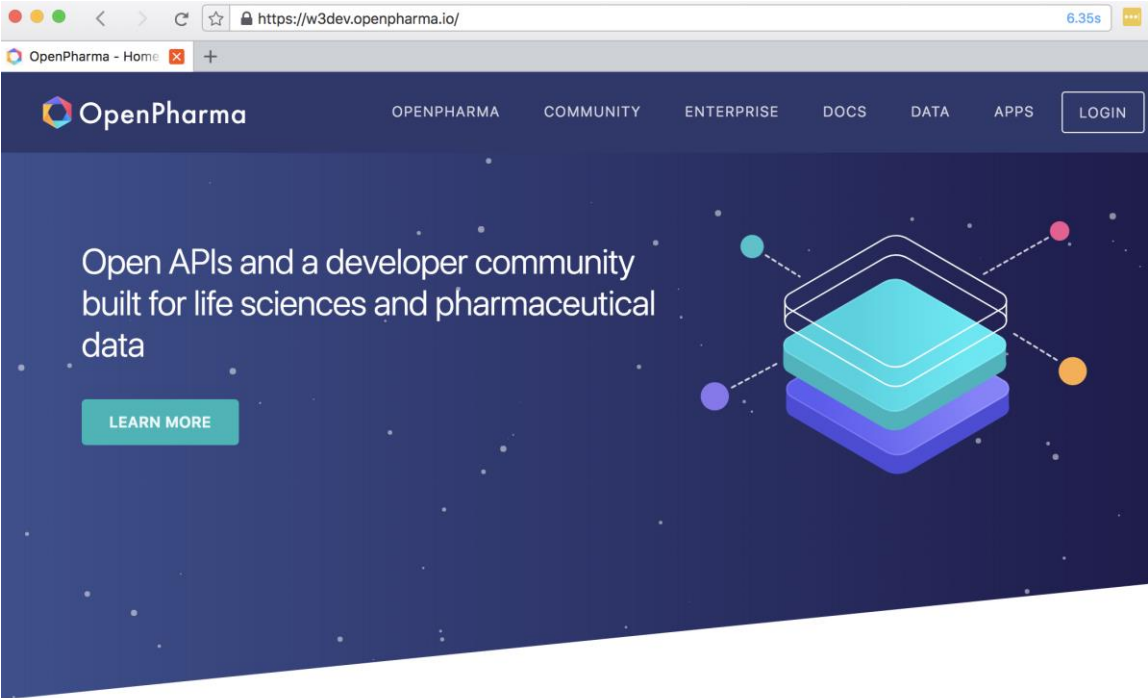
Contributors to Open  
Software on Github

Rank	Company	Employees Contributing
1	Microsoft	4,550
2	Google	2,267
3	Red Hat	2,027
4	IBM	1,813
5	Intel	1,314
6	Amazon.com	881
7	SAP	747
8	ThoughtWorks	739
9	Alibaba	694
10	GitHub	676
11	Facebook	619
12	Tencent	605
13	Pivotal	591
14	EPAM Systems	585
15	Baidu	584
16	Mozilla	469
17	Oracle	455
18	Unity Technologies	414
19	Uber	388
20	Yandex	351
21	Shopify	345
22	LinkedIn	343
23	Suse	325
24	ESRI	324
25	Apple	292



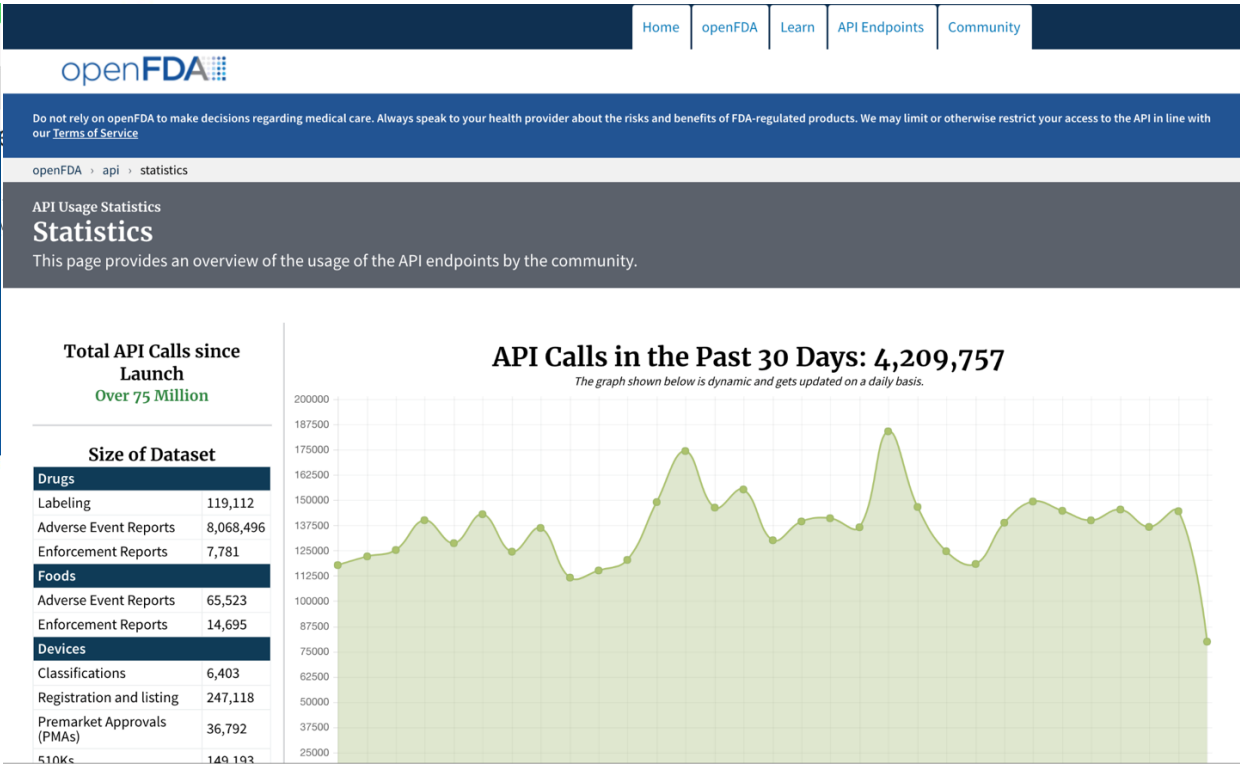
# Relevant Open Technologies...

[Early Preview: w3dev.OpenPharma.io](https://w3dev.openpharma.io)



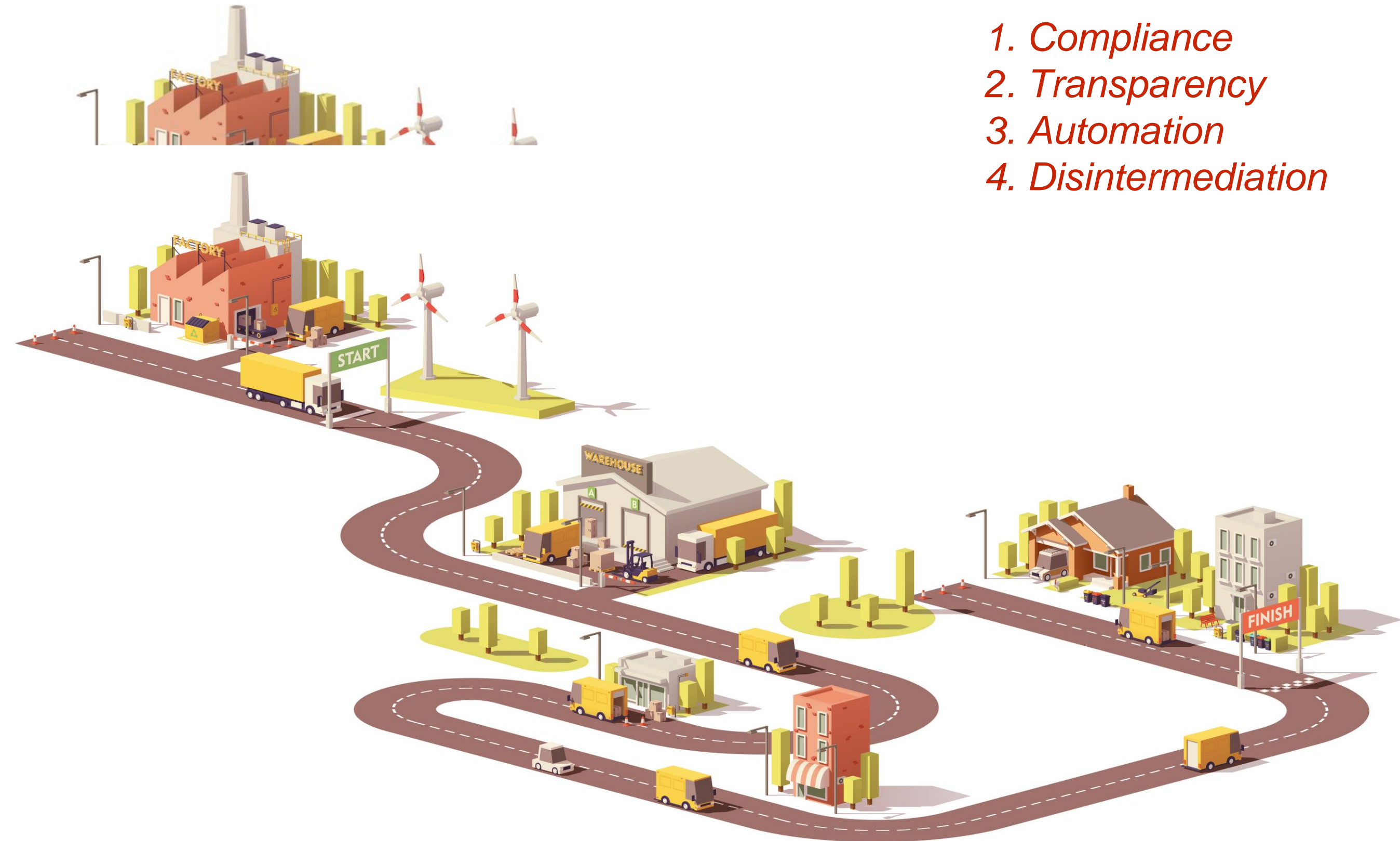
## Be Open First

In supporting our mission to protect America from health, safety and security threats, both foreign and in the U.S., one of our goals is to be open. "Being Open" enables the American people access to high-quality public health data sets, APIs, and code repositories. Thus driving innovation and increasing the health security of our nation.

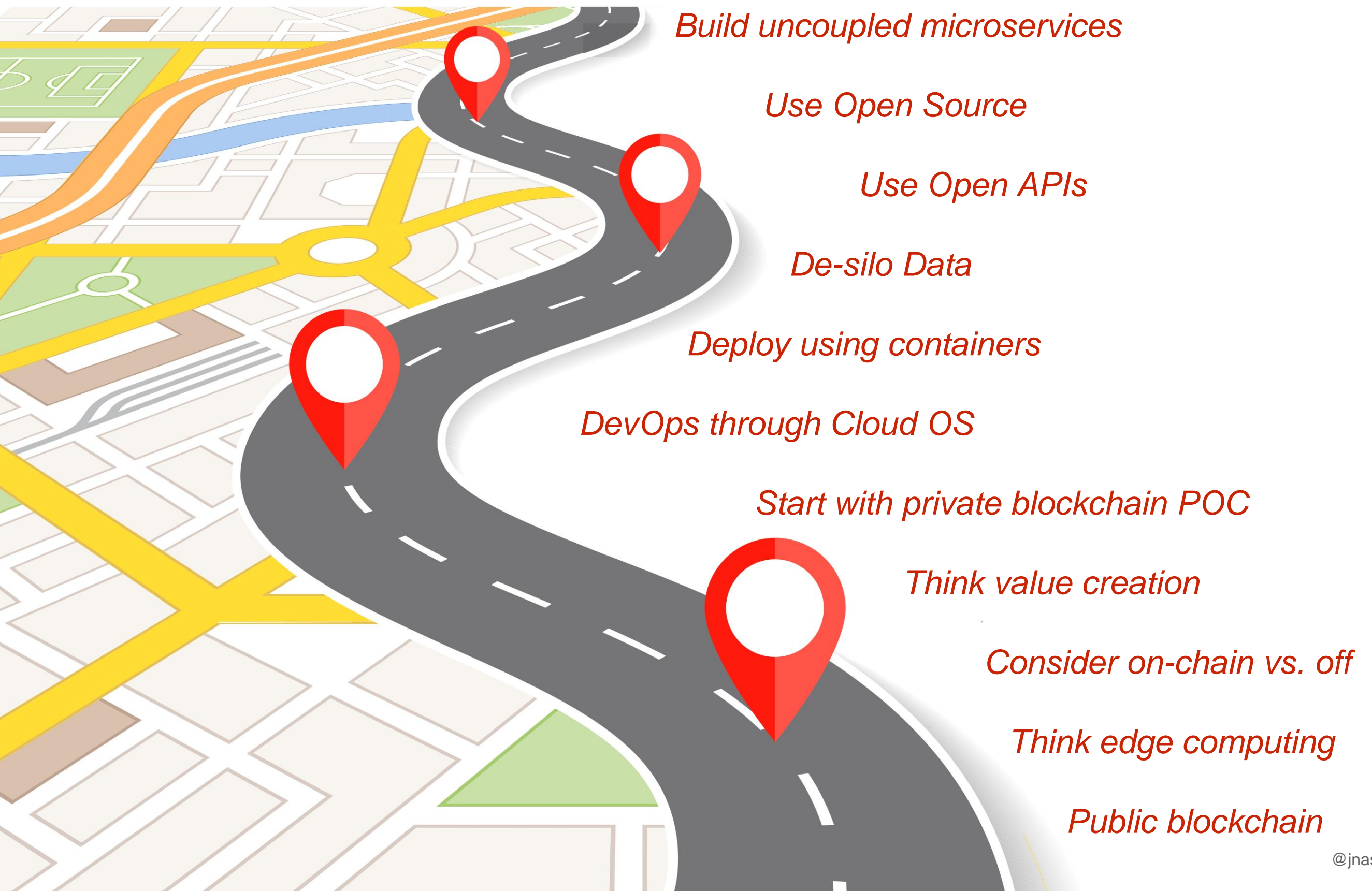


# Supply Chains at Heart of Disaster Relief

1. *Compliance*
2. *Transparency*
3. *Automation*
4. *Disintermediation*



# Leaping Ahead: Road to Blockchain





# Could've Said This at the Beginning!

## Blockchain is relevant for public causes

Think **public blockchain** long-term for many use cases

- Private to public (permissioned to permissionless)
- Think off-chain (what's real-world, where's the data)
- Think tokens to attribute value creation

Easiest use cases to address are **internal supply chain**

**[FIRST]** Compliance & transparency = improvement

**[LATER]** Automation & disintermediation = transformation

Separate **noise from signal**

- Scaling, interoperability, protocols, performance, ease of use... all evolving at record pace. Don't get hung up here
- Focus on prioritization and continued experimentation

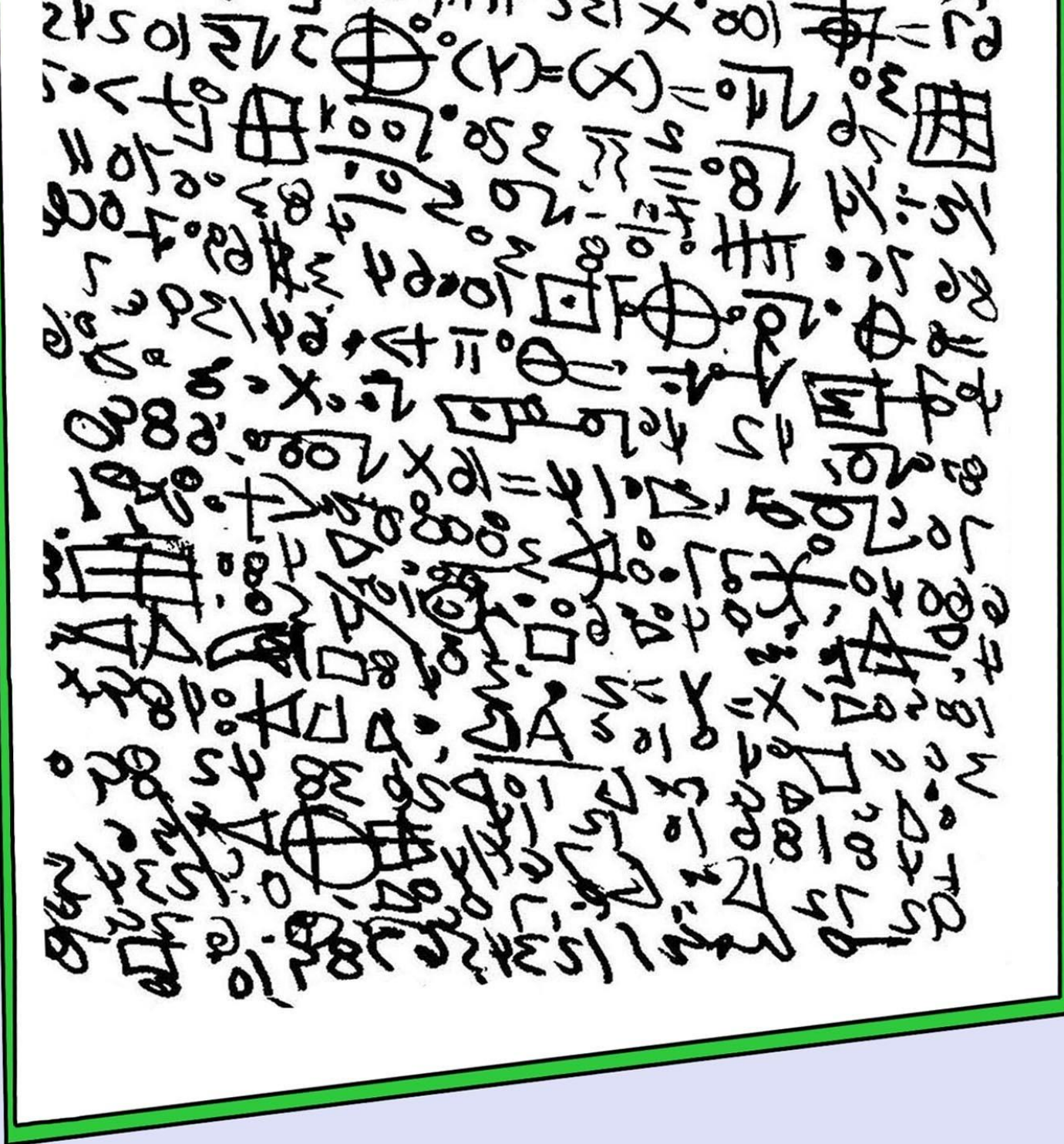
Invest in the **right people**

- Start with right culture, open technologies, DevOps



Questions:

Jim Nasr | @jnasr  
[jimnasr.com](http://jimnasr.com)



**“When you put it like that, it makes complete sense.”**