

DataKitchen

DataOps:
The New Norm in Pharma

Agenda – DataOps: The New Norm in Pharma

- DataOps & Pharma Industry Overview
- R&D DataOps
- Commercial Pharma Process Hub
- DataOps Enabling a Data Mesh in Commercial
- DataOps-as-a-Service in Commercial
- Enterprise-Wide DataOps Transformation
- Conclusion

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DataOps Focus Is Upstream

Data Analytic Projects



The Results are In…

- 60% fail altogether – Gartner
- 79% have too many errors – Eckerson
- 87% of data science projects never get to production – Gartner

Upstream, Not Next Task

- The Model,
- The Algorithm,
- The Data Pipeline,
- The Data Visualization,
- The Governance,
- The Data Itself



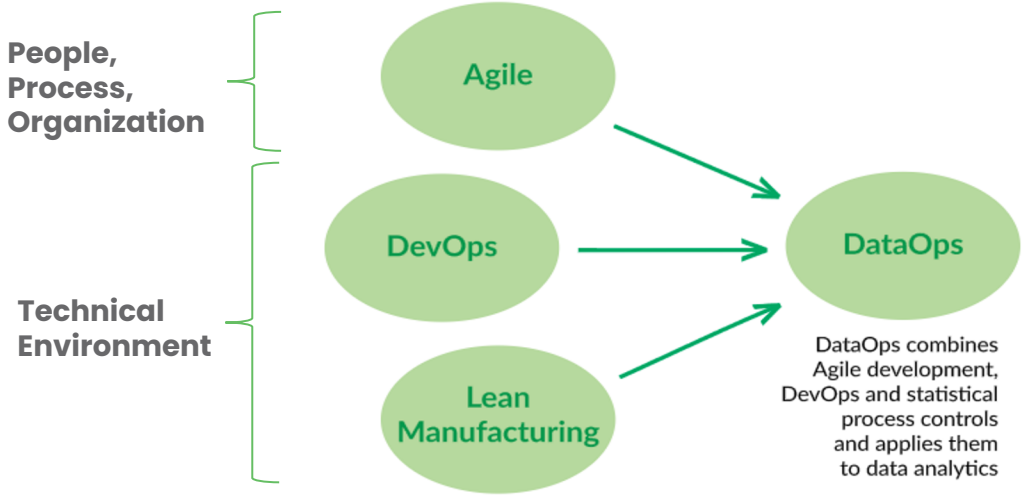
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DataOps Defined

DataOps – The technical practices, cultural norms & architecture that enable:

- **Rapid cycles** of experimentation & innovation to delivery of new insights to our customers
- Low **error rates**
- **Collaboration** across complex sets of people, technology & environments
- **Clear measurement** & monitoring of results



"Organizations that adopt a DevOps- & DataOps-based approach are more successful in implementing end-to-end, reliable, robust, scalable & repeatable solutions."
-Sumit Pal, Gartner, November 2018

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Pharma Is Rich (in Data)

Worldwide pharmaceutical sales is $1.2 Trillion USD

- North America was the largest region in the global pharmaceuticals market, accounting for 46% of the market in 2021

Pharma is rich in data

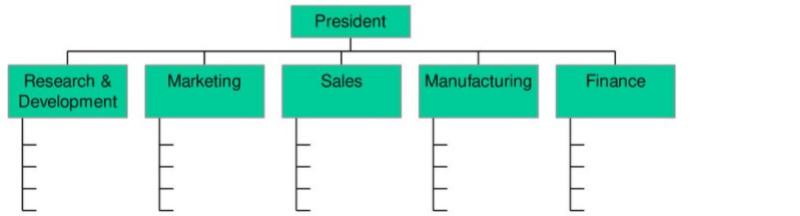
- Increasingly, pharma companies are competing on the basis of their analytic capabilities
- Yet, internal teams can't deliver the high-quality, on-demand insight required because:
  - Pharma companies are operating with especially complex & sensitive data in a complex marketplace
  - Pharma teams operate in silos, with different teams using different tools in different locations
  - Complex, varied data

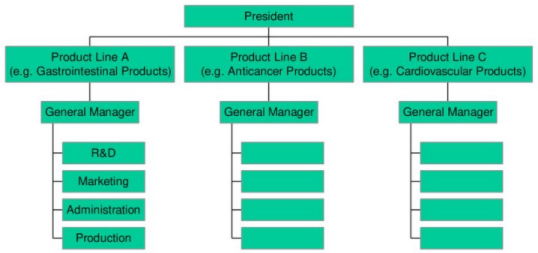
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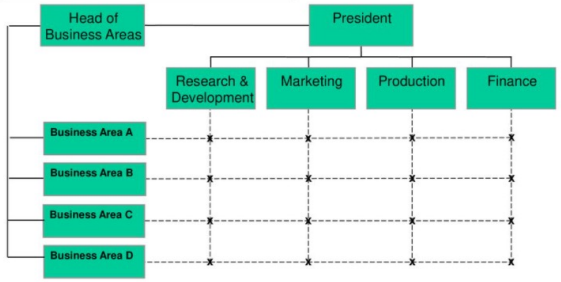
Pharma Is Organizationally Complex

Functional Structure (cont.)





Matrix Structure (cont.)



- Very different functions:
  - R&D
  - Commercial
  - Manufacturing
  - Supporting/Finance
- Very different career paths – most people stay in lane
- Very different data sets in every function
- Types:
  - Organization can be by product line, where each product line is its own business
  - Organization by function
  - Matrix Organization
- Data Team landscape is equally distributed & varied

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Varied Pharma Data Landscape



R&D Data:

- Genomic, experimental, laboratory, chemistry, clinical trials, image & lots of unstructured data, etc.

Commercial Data:

- Syndicated sales (e.g., physician, payer, plan & product), anonymized patient, claims, NPP (marketing), sales force & lots of unmastered structured data, etc.

Manufacturing Data:

- Manufacturing operations, IoT, regulatory compliance, process control, good manufacturing practices, etc.

Finance, HR & Other Corporate Data:

- SAP, HR System, etc.

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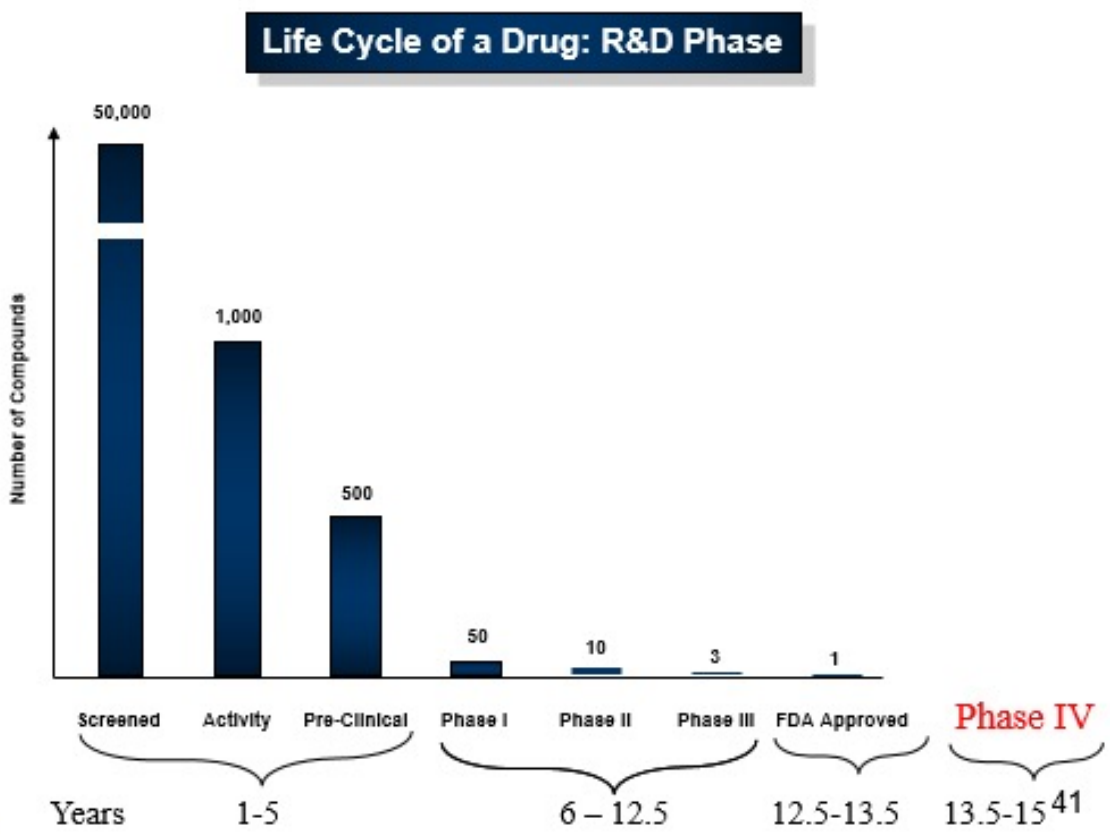
DataOps & Drug R&D

"The two most important batting grounds in pharma are the compression of clinical cycle time for trials as well as demonstrating superior value from our therapeutic innovations to our patients, regulators, & reimbursors the world over."

-Kamayini Kaul,
BMS Executive Director,
Enterprise Info Strategy & Risk Mgmt;
Chief Global Data Protection Officer

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Drug Innovation Is Hard

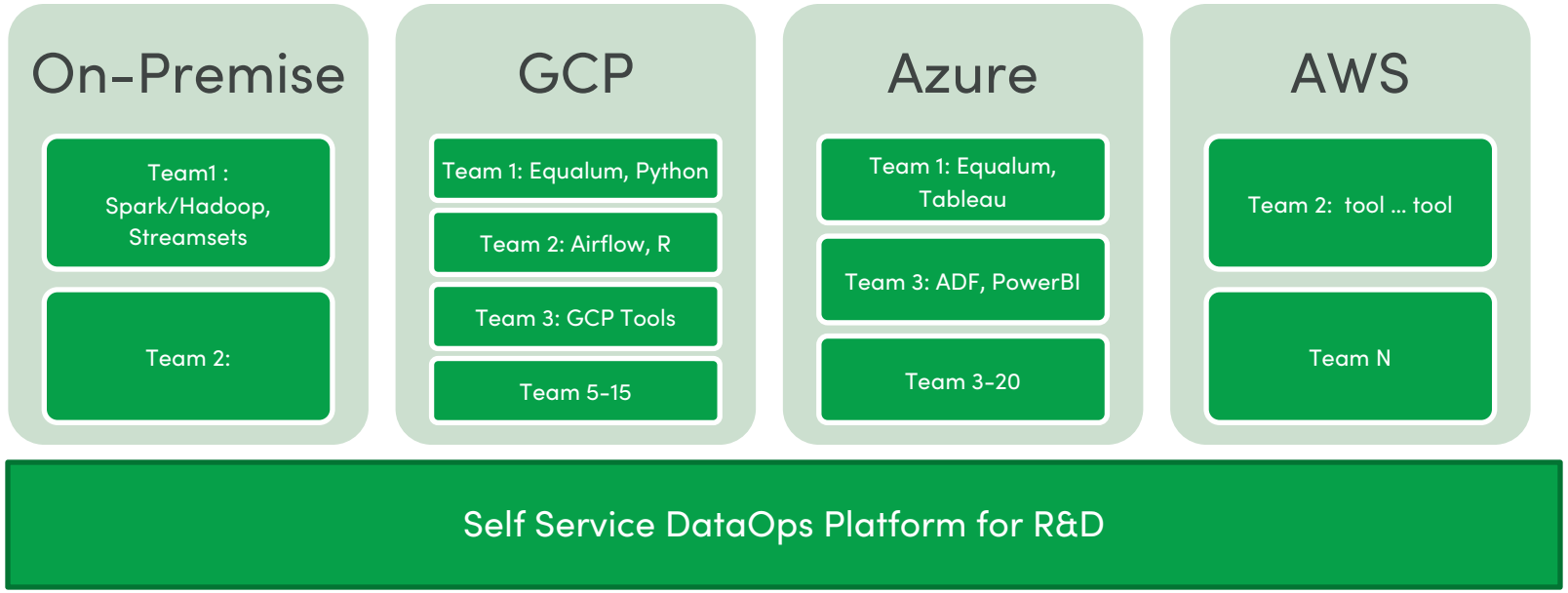


- Innovation is a risky, time-consuming & costly business
- Only a fraction of eligible products win FDA approval
- On average, it costs over $1 Billion USD to bring a drug to market

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Challenge: Self-Service DataOps Platform for R&D

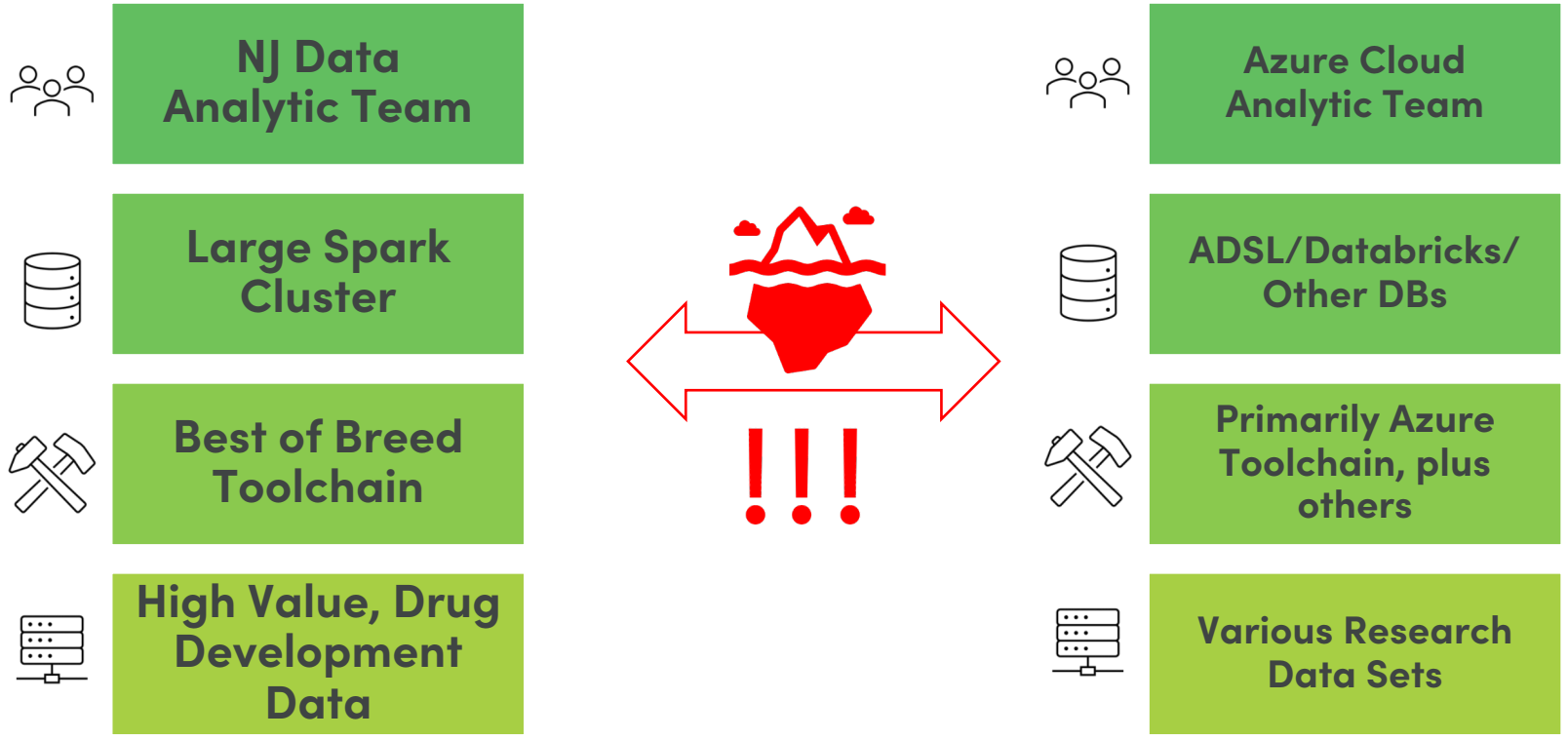


- Multi-cloud & on-prem
- Many tools, no consistency
- How to share, reuse & have best practice
- DataOps adoption

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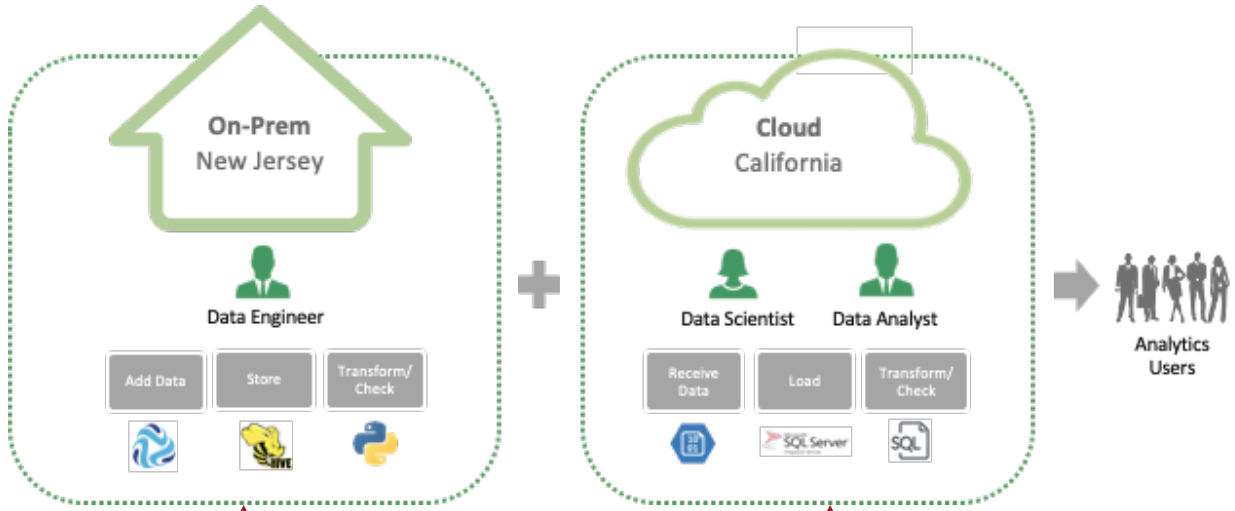
Example: Cloud Dataops in the Real World



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One Example of Issues of Teams Working Separately

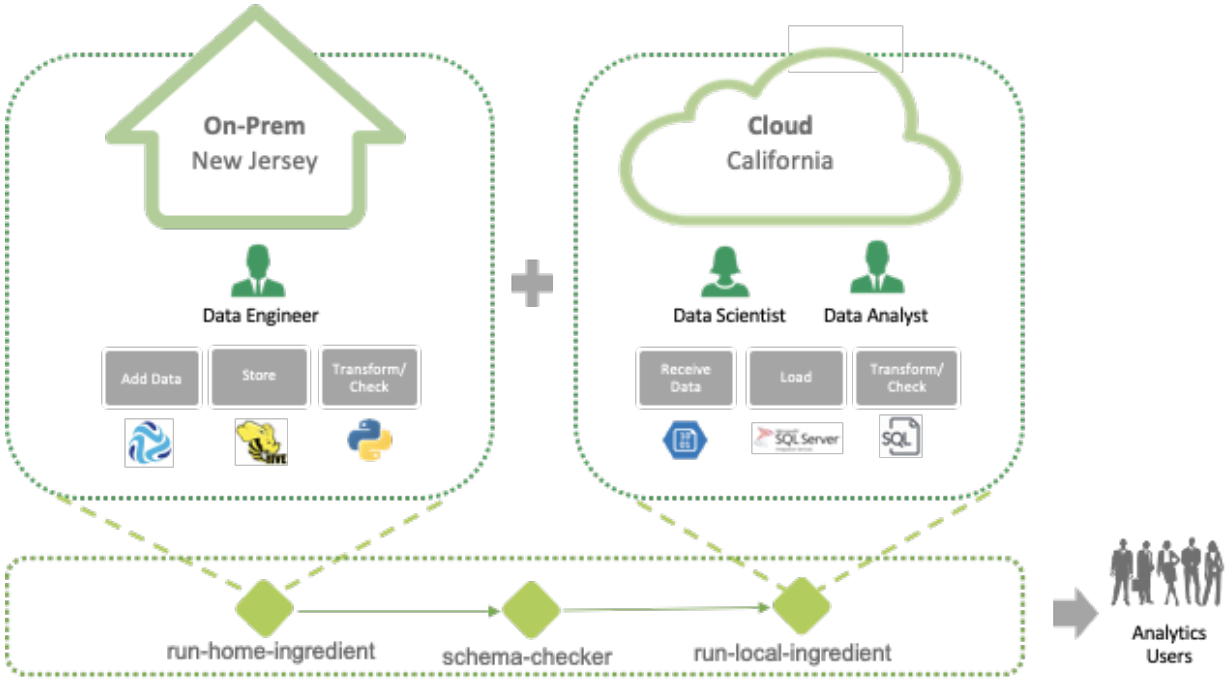


Drift between these two schemas cause unexpected delays, errors, & problems.
Lack of trust in data on both sides. Team conflicts.

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Solution Schema & Meta Orchestration, Testing & Monitoring; Versioning



- Enabled collaboration across teams assuring consistency & rapid development
- Ensured quality of analytics via system-wide testing, monitoring & alerting
- Enabled continuous, rapid development & successful deployment of new features
- "Un-deploy" if required, ensures better data operations in case of issues
- Preserved history for governance

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Key Quotes



"It was pretty a simple impetus. When we looked at the amount of energy that goes into, how many people it takes to create data, to drive a data scientist & the like, ***it was absurdly inverted towards so much horsepower just to create something*** *for somebody somewhere."*



"It struck me that ***DataOps has*** *the potential of being one of the* ***transformative capabilities*** *& not just from a technology perspective, but from the lens it brings to how we approach these complex data environments."*



"To ***take them out of the craft world*** *of people talking to people talking to people & praying to one where there is constant monitoring, constant measurement against baseline & the ability to incrementally & constantly improve the system."*



-Kurt Zimmer, AstraZeneca, Head of Data Engineering inside Data Enablement;
Source: CDO Summit 2021 Using DataOps to Drive Agility & Business Value

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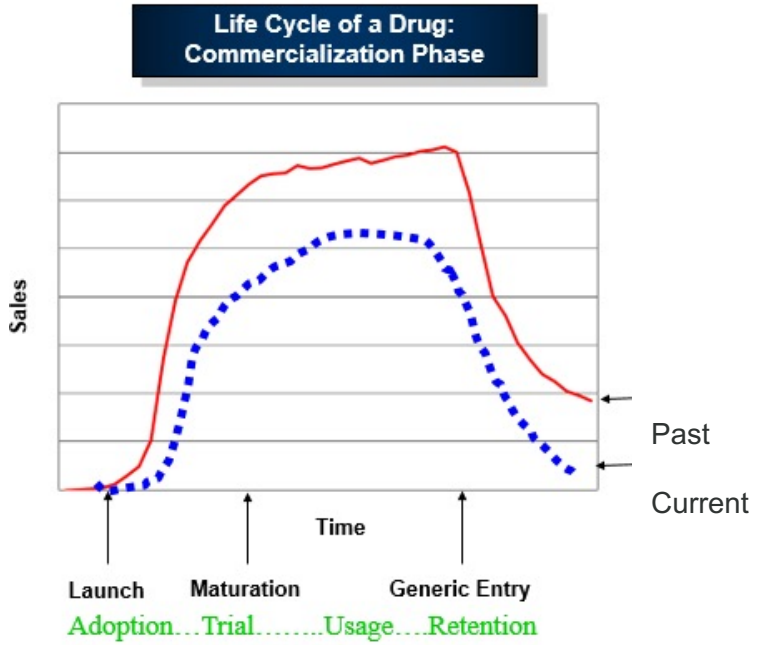
Commercial & DataOps

"DataKitchen has enabled us to become nimble & agile when it comes to data. We are now a self-service data organization — from the marketing department to the sales reps."

—Director, Market Insights, Celgene

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Pharma Product Commercial Lifecycle

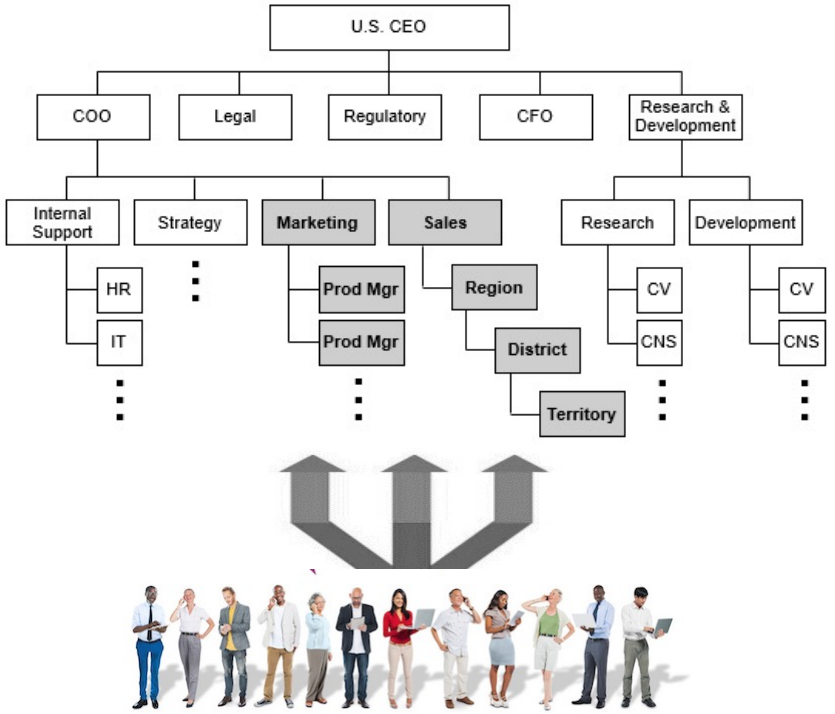


- In commercial operations, specifically, the first few months of a product launch are critical to a brand's success
- If a company doesn't execute well in these first months, it can have dramatic implications for long-term revenue

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The Entire Organization Demands Insight

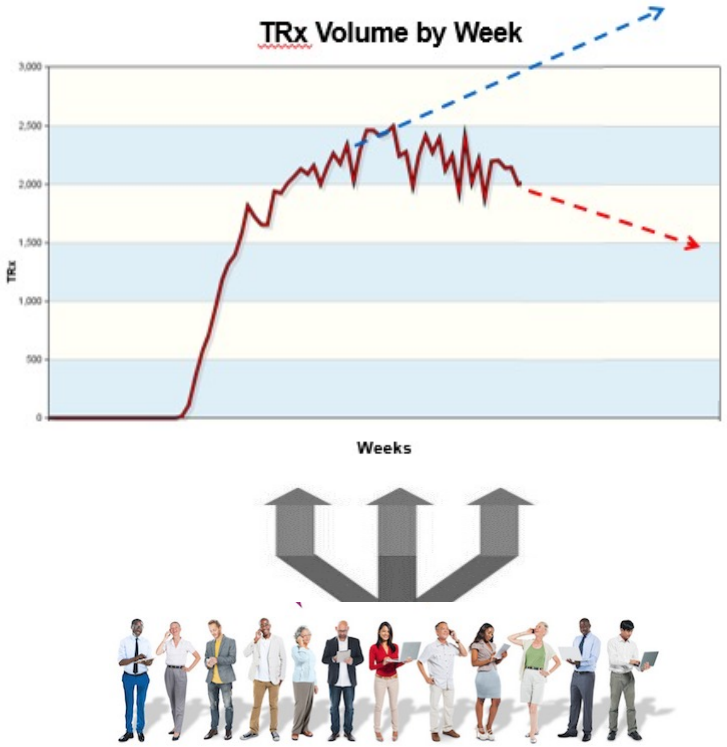


- All parts of the company demand insight
- An Analytic Team is put together to provide that insight & produce deliverables

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The Analytic Team

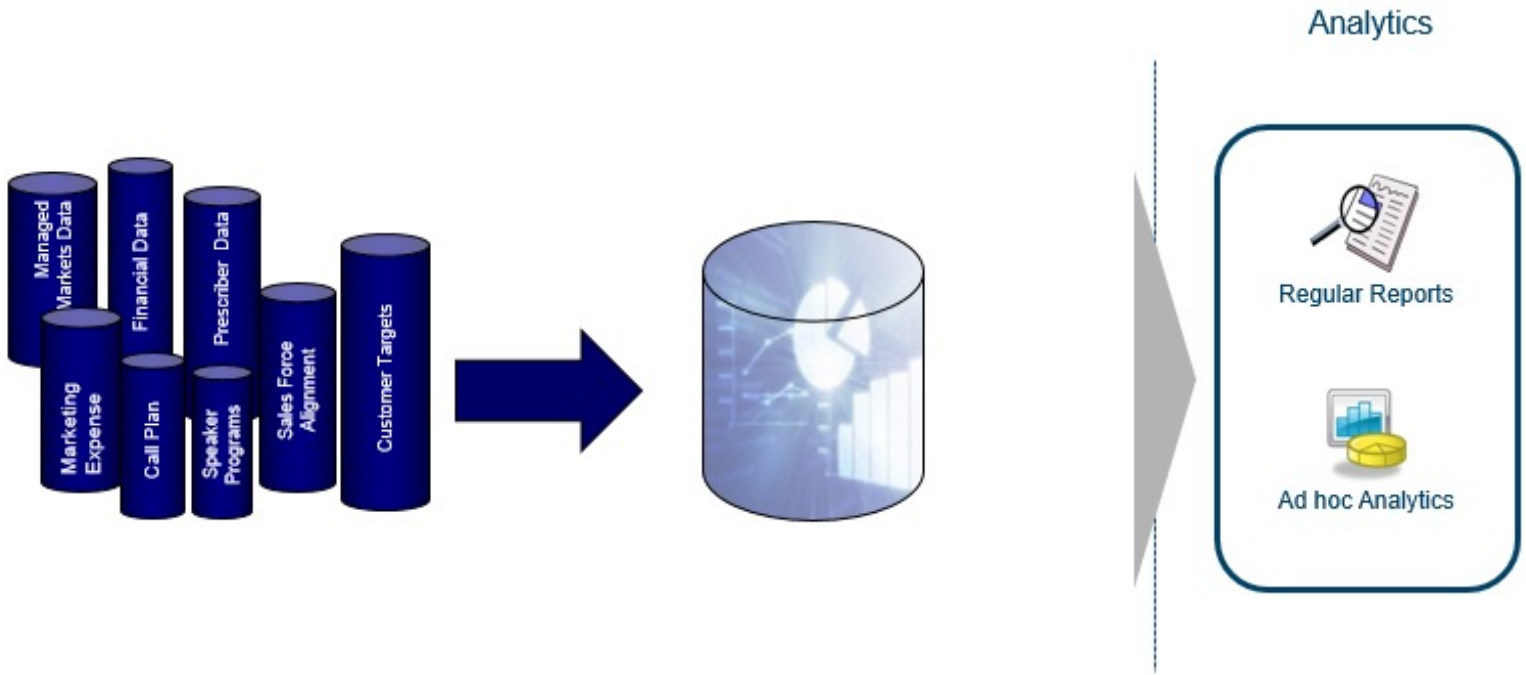


- The Analytic team is focused on the product growth trajectory
- They deliver that insight with various frequencies:
  - Hourly
  - Daily
  - Weekly
  - Monthly

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Data Comes from a Variety of Sources & Uses



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#	Report / Activity	Description	Frequency	Data	Who	Key Metrics
	Forecast Tracking Report	Report that displays key national metrics about brand performance against forecast	Weekly	NPA, Forecast Metrics	Sr. Mgmt, Brand Teams	TRx, NRx, Units
2	Forecast Creating	Activity to develop forecast, which could be based on analogs, historical trends, population facts, projected events, or other methodology	Quarterly Update	NPA, Other Data Sets	Sr. Mgmt, Brand Teams, Finance	TRx, NRx, Units
3	Launch Tracking Report	Report at the Executive Level that summaries key points from other, more detailed reports	Weekly	Multiple Data Sets	Sr. Mgmt, Brand Team, Rest of Home Office	TRx, NRx, Cohorts, Geographic Differences, Deciles, Specialties, Targets, Activity Actual vs. Plan, Payer Performance, Top Docs
4	Stocking Report	Report that displays which pharmacies carry the brand	Weekly	Symphony Stocking Data	Brand Team	Number of Pharmacies Stocked
5	Brand Team Report	Report that covers critical sub-national topics in depth	Monthly	Symphony Sub national, AMA Letter shop, Alignment, Targeting, Promotional, Field Activity, and Other	Brand Team	TRx, NRx, Cohorts, Geographic Differences, Deciles, Specialties, Targets, Activity Actual vs. Plan, Payer Performance, Top Docs, Promotional Execution, Promotional Results, Others
6	Field Activity Report	Report that displays sales representative activity compared to planned activity	Weekly	AMA Letter shop, Alignment, Targeting, Field Activity	Field	Activity (calls, samples)
7	Field Performance Report	Report that displays brand performance by geographic alignment	Weekly	Symphony Sub national, AMA Letter shop, Alignment, Targeting	Field	TRx, NRx, Activity (calls, samples)
8	Pre-call Planning	Physician level reports that integrate multiple data sets	Weekly	Multiple Data Sets	Field	Multiple Metrics by Physician
9	IC Report	Report that ranks each sales representative based on performance and business logic	Weekly	IC Grade Symphony Sub national Data	Field	IC Metrics, Rank
10	Supporting Plan of Action (POA) / National Sales Meetings	Activity to develop series of presentations, interactive quizzes, posters, and facilitated sessions	At Meetings	Multiple Data Sets	Field	Field-Based Activity and Performance
11	Payer/Plan Report	Report that displays performance of Major Model Groups, Minor Model Groups, and Individual Payers/Plans	Monthly	Plan track, Formulary, Co-pay, with Bridge File	Brand Team	TRx, NRx, Units
12	Claims Reports	Reports on numbers of claims per product over time	Weekly	Symphony Claims Data	Sr. Mgmt, Brand Team, Field	Multiple Metrics
13	Brand Planning	Activity to support brand team over few months of annual brand planning	Few Months, Annually	Multiple Data Sets, Drivers Analysis	Sr. Mgmt, Brand Team	Multiple Metrics
14	Responding to Analytic Questions	Activity to respond quickly and efficiently to questions about the launch and other sub-national market dynamics	On-Tap	Multiple Data Types	Extended Sales & Brand Team	Multiple Metrics
15	Promotional Mix / ROI Report	Report that displays lift analysis and ROI calculation for major promotional efforts	Monthly	Multiple Data Sets	Brand Team	TRx, NRx, Units, Financial Return
16	DTC Report	Report that displays DTC geographic coverage and displays lift analysis	Monthly	DTC Coverage, Symphony Sub national Data, Alignment	Brand Team	TRx, NRx, Units
17	Non-personal Promotion (NPP) Report	Report that displays lift analysis and ROI calculation for major non-personal promotional efforts	Weekly	Promotional Data, Symphony Sub national Data. Field Activity Data	Brand Team	clicks, views, reads, etc.
18	Source Of Business Patient Level Reports	Report(s) that provide insights about a patient adherence, refills and	Monthly	Source of Business / Longitudinal Patient Data	Sr. Mgmt, Brand Team	Multiple Metrics
19	Specialty Pharmacy Report	Report(s) that provide insights about a specialty pharmacy stocking / sales	Periodically	Specialty Pharmacy Data	Sr. Mgmt, Brand Team	Multiple Metrics
20	Finance Report (s)	Report(s) that display insights about accrued financial metrics	Monthly	Finance Data	Sr. Mgmt, Brand Team, Finance	Multiple Financial Metrics
21	Demand based P&L Report	Report that uses TRx, SKU, pricing, contracting, and other data to build a "demand" based P&L	Monthly	Multiple Data Sets, including Contracting and Pricing Data	Sr. Mgmt, Brand Team, Finance	Multiple Financial Metrics
22	REMS (Risk Evaluation and Mitigation Strategy) Report(s)	Reports on use within certified components of delivery chain	Daily/Weekly/Monthly	REMS Specific Data Sets	Brand Team	Multiple Metrics for REMS
23	Developing Target List	Activity to identify most promising existing or potential prescribers	Periodically	AMA Letter Shop, Alignment, Symphony Sub national Data, Other Data Sets	Sales Ops	Scores by Physician, Zip to Terr
24	Supporting Periodic Sales force Logistics	Activities to enable sales force to function effectively and efficiently	Periodically	Multiple Data Sets	Sales Ops	Multiple Metrics

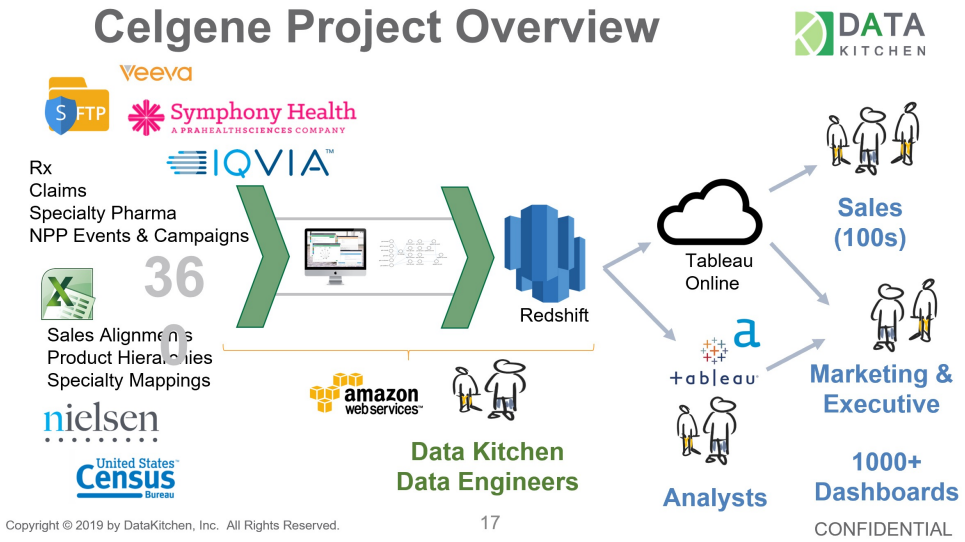


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DataOps Success at Celgene/BMS

What The DataKitchen DataOps Platform Handles

- Integrating hundreds of data sets
- Mastering & creating a unified data star schema representation
- Very, very few errors or missed SLAs
- +10,000 automated tests
- +100 of schema/data changes per week
- Staff of seven data & DataOps engineers
- Low total yearly costs hardware/hosting/software/staffing



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Main Idea:

The Analytic Team's overall goal: allow fast changes to support investigative analytics & high-quality production deliverables

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DataOps Process Hub in Commercial

"Analytics agility leads to business agility. When the data team delivers analytics rapidly & accurately, analytics do a better job supporting decision-makers."

-James Royster, Celgene

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Current Process Challenges with Commercial Analysis

Commercial Pharma Analytics Team - Common Challenges

- Raw, barely integrated data sets cause analysts to do manual, repetitive, error prone work to create analyst-ready data sets
- Slow, unagile approach to supporting Commercial Pharma Analytics analysts mean that the team must do data work manually
- Repetitive data process & query work reduces the time the Commercial Pharma Analytics team to create original insight
- Lack of shared & reusable 'ingredients' for analysts cause extra time to do ad hoc analysis
- Firefighting & stress are common
- Inconsistencies in how the analytic team applies business data process & business logic cause errors

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Commercial Pharma Analytics Today

*"**How do we do the same level of service faster?"***

*"I wish I were in a better position. **I got cut off at the knees from a data perspective**, & I am getting handed a sandwich of sorts...& not a good one!"*

"What kind of back-end process can we have to answer what-if questions faster?"

"My team is being too reactive; need a system to help them be more proactive with our customers."

"This is a last mile problem."

"Right now, this is a 90% Commercial Pharma Analytics problem & 10% IT problem"

"Hard to change our IT data product. I don't understand how they do it or QA."

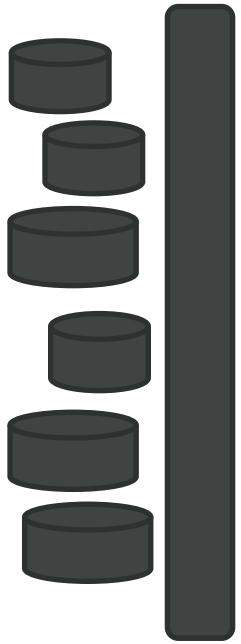
*"**Can we create data in an 'answer-ready' format?** That has data quality & can answer many scenarios? Where we can just click a few buttons?"*

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DataKitchen Process Hub Lowers Cost per Question

IT Data Lake



Infrastructure

DataKitchen Process Hub

- Simplifies analysts work
- Automates, doesn't add consulting
- Continually finds improvements
- Reduces errors
- Improves sharing & reuse
- Curates & manages processes
- Captures commercial pharma analytics domain expertise
- Fast changes
- Controlled & trusted by commercial pharma analytics

Enablement

Users

- **IT Staff**
- **Commercial Pharma Consultants**
- **Commercial Pharma Analytics Team**
- **Data/Analytics Engineers**

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How DataKitchen Lowers the Cost per Question & Delivers the Answer Faster

A Process Hub across Multiple Teams:

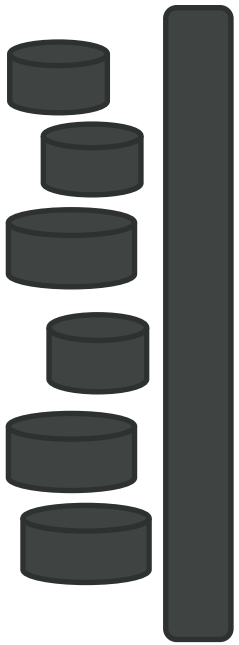
- Automated, governed & reusable processes to minimize consulting
- Multi-team, multi-vendor & multi-location collaboration
- Rapid turnaround time
- Automated error reduction
- Analyst-ready, trusted data sets
- Works on top of existing data lake
- Reusable libraries of recipes & ingredients
- Open, secure platform for anyone to:
  - Access data
  - Change the process used to create that data
- If you centralize the process, you can generalize the process & save time & effort
- Controlled by commercial pharma analytics team

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DataKitchen Process Hub Lowers Cost per Question

Permanent Data Lake



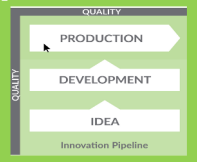
DataKitchen Process Hub

Process Steps (Recipes, Tests)



Production Run (Orders)

Rapid Development (Kitchens)



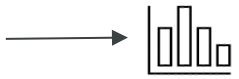
Limited Term Databases (...)



Commercial Pharma Analytics Customer

Daily/Weekly/Production Work

New, ad hoc Insight





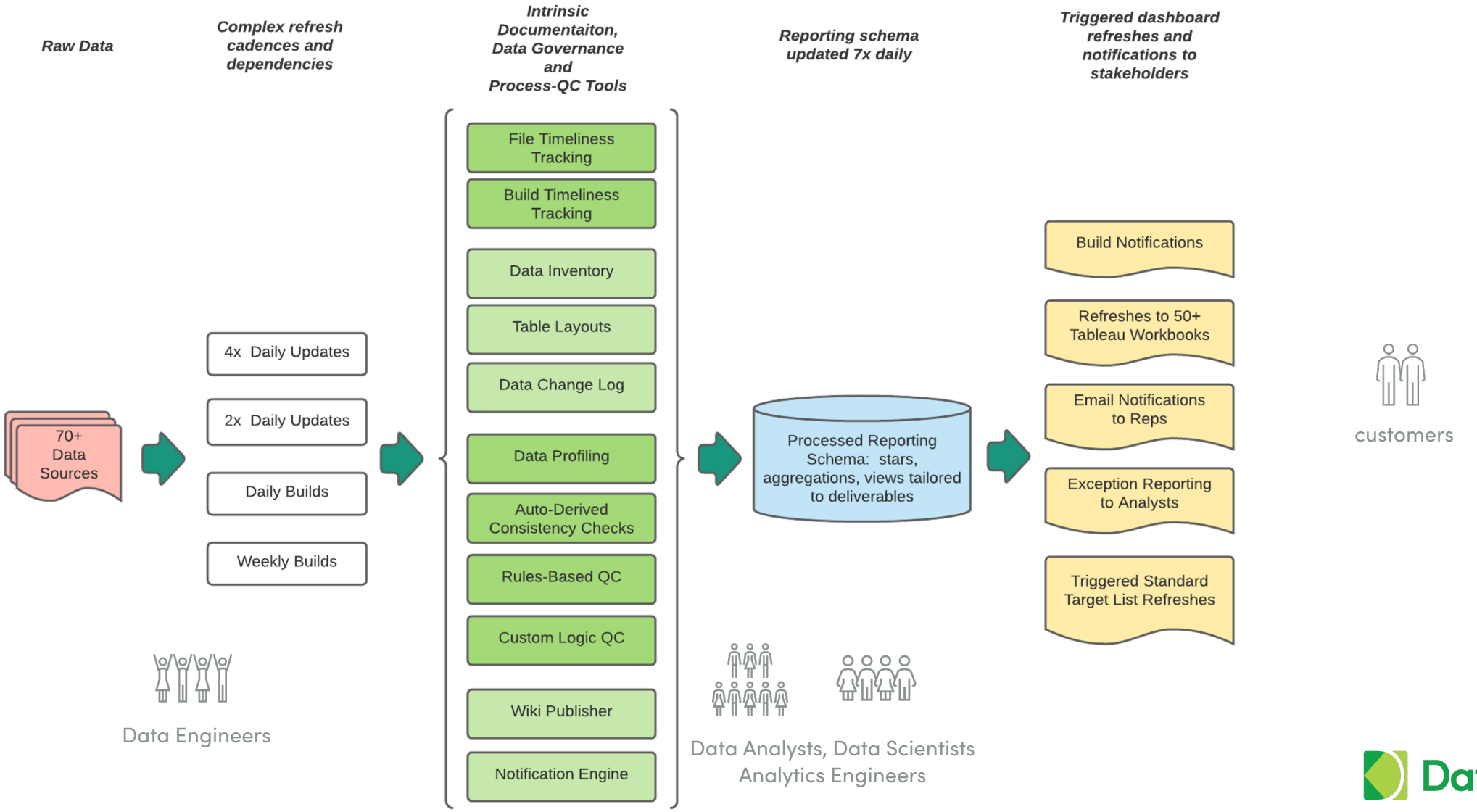
Brand Customers



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Example Process Hub for a Biologic Launch



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DataKitchen Process Hub Business Benefits

FEATURE	BENEFIT
Process create data designed for Commercial Pharma Analytics	Significantly faster time-to-insight for ad hoc requests
Automating (& reusing) process with a button push	Significantly less dollars spent on Commercial Pharma Analytics consultants & staff time
Enablement for Commercial Pharma Analytics, not IT infrastructure	Extend IT investment, not replace

We can replace an army of people with a DataOps process hub & allow Commercial Pharma Analytics to produce more insight, faster, at the speed your customers & business demand

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Main Idea:

Processes that act upon data
are as important as the data itself

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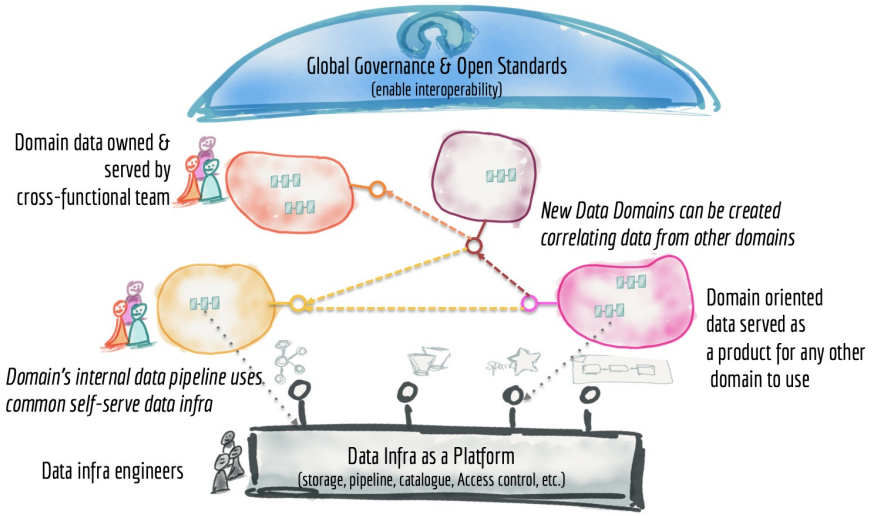
DataOps Data Mesh in Commercial

"So much of what we do involves business questions that are fire drills. Executives want answers as quickly as possible. The infrastructure that we've set-up with DataKitchen allows us to mix & match data in new ways so that we can quickly get the answer to a question."

—Manager, Data Analyst

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Data Mesh 101



Why Data Mesh?

- Centralized Systems Fail
- Skill-based roles are unable to respond to rapid customer needs
- Data domain knowledge matters
- Universal, one size fits all patterns fail
- General Data Analytic Project Failure

What Is Data Mesh?

- Organization principle for data systems
- Organize work into discrete domains
- Allow autonomous work in each domain
- Data product and customer value focus
- Teams stay with and know the domain of data
- Inspired by domain driven design (DDD) in software

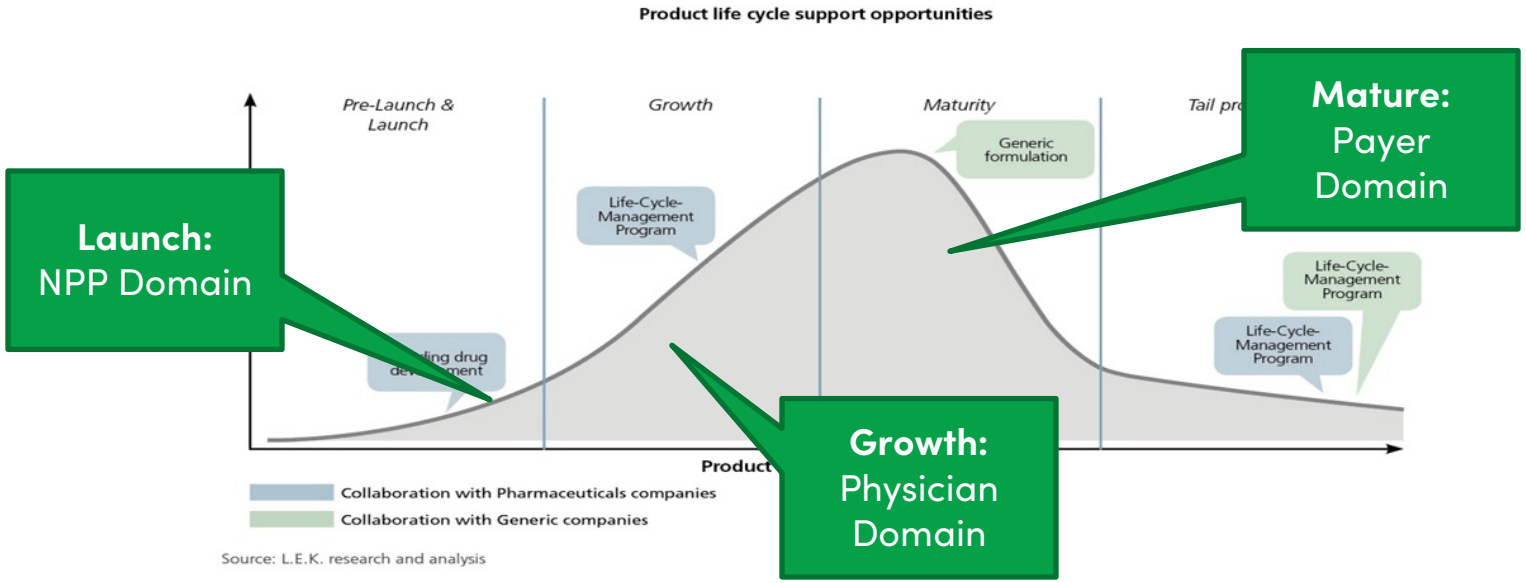
The main idea is to take a best practice from developing software & apply them to data analytics. (Sound familiar?)

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An Example of Domains

Commercial Pharma Analytics



US Commercial Pharma Domains:

- **NPP** (Non-Personal Promotion): i.e., emails, web site visits, radio ads, etc.
- **Physician**: doctor (& other outlets) sales, claims data, anonymized patient data, etc.
- **Payer**: Payer/plan, rebates, formulary, etc.

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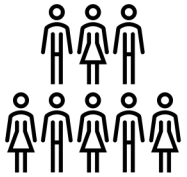
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Pharma Sales & Marketing Teams



NPP Domain Marketing & Sales Team

- One part of the pharma brand team focused on ads, digital & other non-personal promotions.
- This team matters most pre-launch & during the growth phase of a product.



Physician Domain Marketing & Sales Team

- Another part of the pharma team focused on in-person sales.
- Those are the good-looking people you see in doctors waiting rooms.
- Sales calls, samples, doctor visits, messages, call alignments, etc.
- This team matters the most during the first years of a pharma launch.



Payer Domain Marketing & Sales Team

- A third part is focused on Payer Marketing.
- This part is - in essence - controlling the price of a pharmaceutical product due to the rebate given to any payer.
- They are concerned about the rebate contract, being on formulary & tier & copays.
- Payer Marketing matters more during the 'mature' phase of a pharma product lifecycle.

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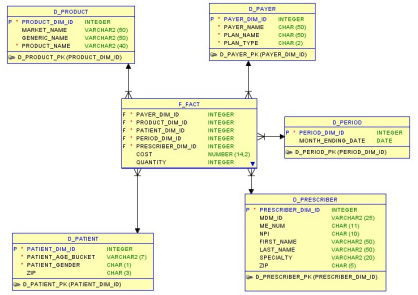
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What About the Data?

Sub-national Weekly data
Sub-national Payer Data
Sub-national Institutional (DDD) Data
National Prescription Audit Data
Sales Force Alignment Data
Longitudinal Patient Data
Sub-national Profit and Loss Data
Sub-national Claims and Co-pay Data
Payer and Plan Formulary Data
Census Data
Stocking Data
Source of Business
AMA Data
Retail OTC Data
Buy and Bill Data
Field Calls and Promotional Activity Data
Rep Expenses and Vacancy Data
Hotline Verification Data
Contract and Payer Rebates Data
Veeva CRM Data
ERP Data
NPP Data
Forecast Data
Primary Research Data

What about the data in each domain?

- Each domain has separate data sources
- Overlapping entities (e.g., physicians) exist in each domain
- Each domain has different cycle times of product (i.e., daily, weekly, hourly, etc.)
- Each data domain has its unique characteristics.
- For instance, subnational physician data from IQVIA – purchased by pharma companies – may not match claims data 1:1, which may not match payer data.
  This is due to data supplier issues & timing projection algorithms.



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Domain Layers

Mastered Data Sets (IT)

Integrated Data Sets (Data Engineers)

Self Service Tools (Analyst)

1. **Mastering & small files foundation files are a domain layer**
   - There are 1M physicians in the US, but the company master of physicians is only 40K.
   - This work is done by separate teams working independently.
2. **Of course, the main data warehouse is a domain layer**
   There are facts & dimensions, along with multiple tables used for specific analysts needed.
3. **Self/Service & Data Science are a domain layers**
   - They can keep their owned cached data sets (e.g., Tableau extract) or have their own small data sets that they mix with the central data in Alteryx (or other) tools.
   - Data Science teams have their own segmentation models dependent on specific views or extracts of data.

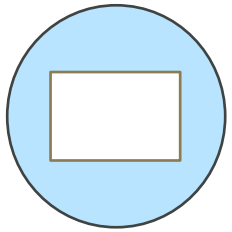
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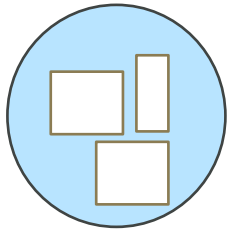
Domain Layers

Raw, Sourced Data (Various)	Mastered Data Sets (IT)	Integrated Data Sets (Data Engineers)	Self Service Tools (Analyst)

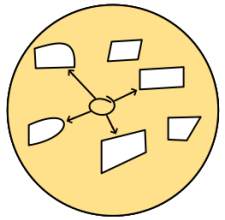
Sub-national Weekly data
Sub-national Payer Data
Sub-national Institutional (DDD) Data
National Prescription Audit Data
Sales Force Alignment Data
Longitudinal Patient Data
Sub-national Profit and Loss Data
Sub-national Claims and Co-pay Data
Payer and Plan Formulary Data
Census Data
Stocking Data
Source of Business
AMA Data
Retail OTC Data
Buy and Bill Data
Field Calls and Promotional Activity Data
Rep Expenses and Vacancy Data
Hotline Verification Data
Contract and Payer Rebates Data
Veeva CRM Data
ERP Data
NPP Data
Forecast Data
Primary Research Data



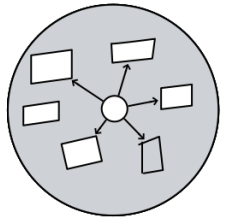
Mastering Domain: Physician MDM



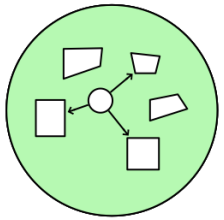
Mastering Domain: Target Lists, Product Market Baskets



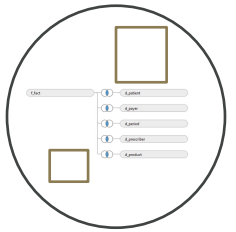
Payer Domain



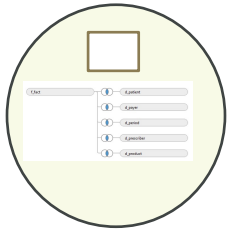
Physician Domain



NPP Domain



Brand Team Reporting Domain



Field Sales Reporting Domain

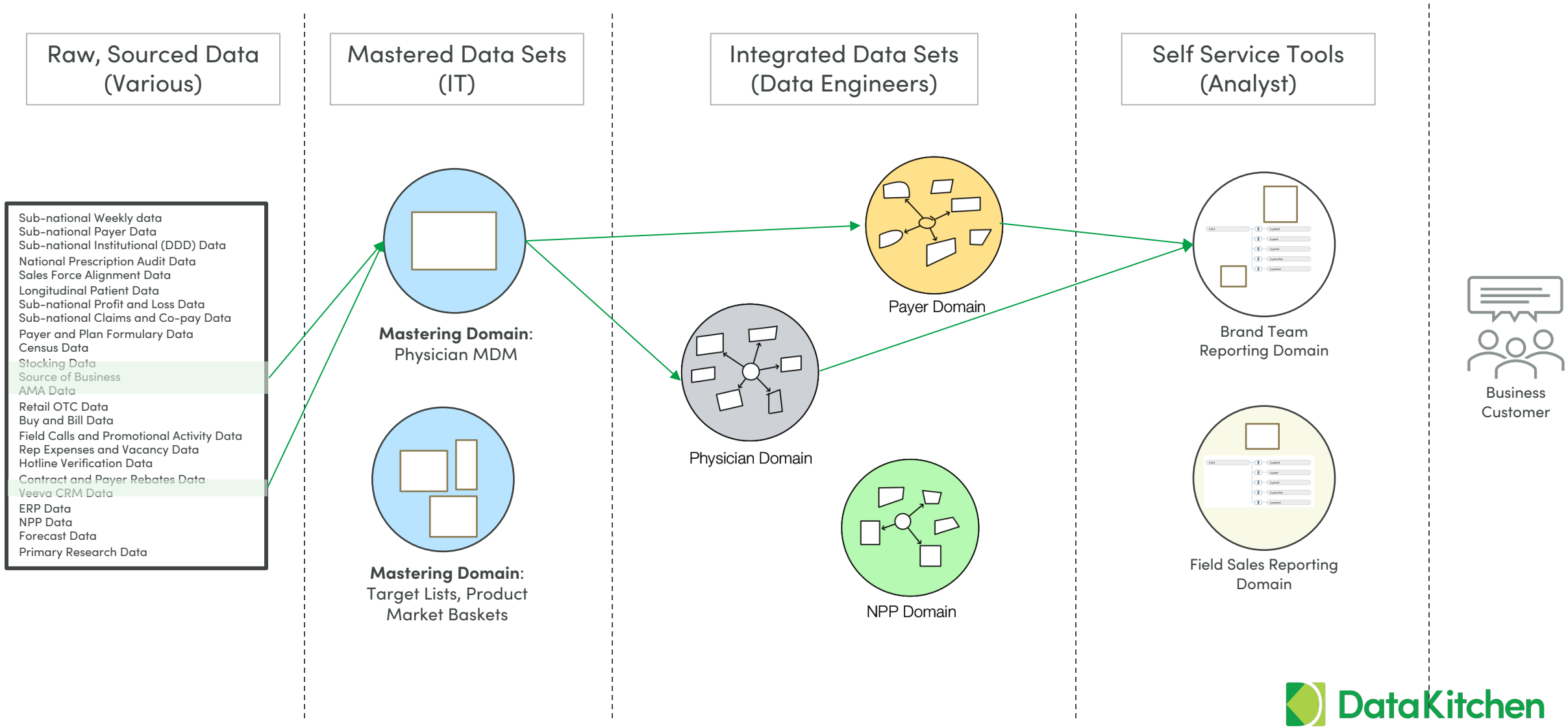


Business Customer

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Domain Layers Processing Relationships



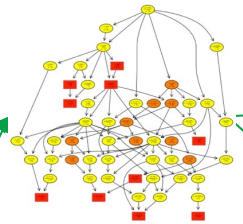
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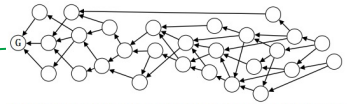
Domain Layers Processing Steps

Raw, Sourced Data (Various)	Mastered Data Sets (IT)	Integrated Data Sets (Data Engineers)	Self Service Tools (Analyst)

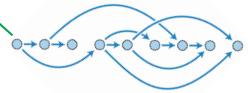
Sub-national Weekly data
Sub-national Payer Data
Sub-national Institutional (DDD) Data
National Prescription Audit Data
Sales Force Alignment Data
Longitudinal Patient Data
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Sub-national Claims and Co-pay Data
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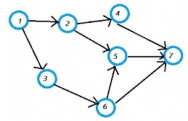
Mastering Domain:
Physician MDM



Payer Domain



Physician Domain



Brand Team
Reporting Domain

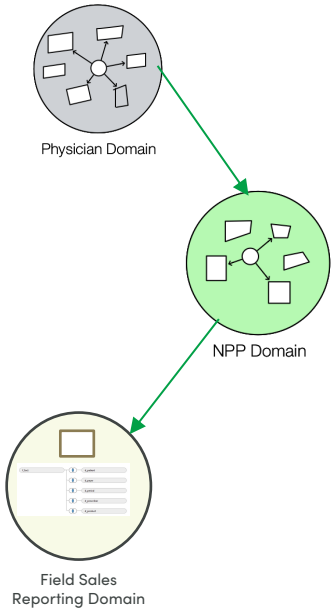


Business
Customer

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Inter-Domain Communication Links



Inter-Domain Communication		Question / Steps Asked
	Domain Query	"When was the last time you were updated?" Successful or failure? Warnings?
	Domain Query	"Is the data or artifacts in your domain good? Can you prove it with some test results?"
	Process Linkage	"Ok, you start. I am done."
	Process Linkage	"Ok, you start. I am done & here are a bunch of parameters you need to keep going."
	Event Linkage	"Here is an event: e.g., processing completed, error, warnings, etc."
	Data Linkage	"We share a common table (e.g., a dimension table) in our domain."
	Development Linkage	"Can I re-create your domain in development?" Can I see the code you used to create it?" "Can I modify that code in development?" "Is there a path to production?"

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Main Idea:

Process & team monoliths fail;
break them into smaller linked domains to win

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DataOps Managed Services

“After working with DataKitchen, for a while, we noticed that there was almost an absolute absence of data errors that we didn't catch earlier in the process. That really was amazing for the team.”

-James Royster, Celgene

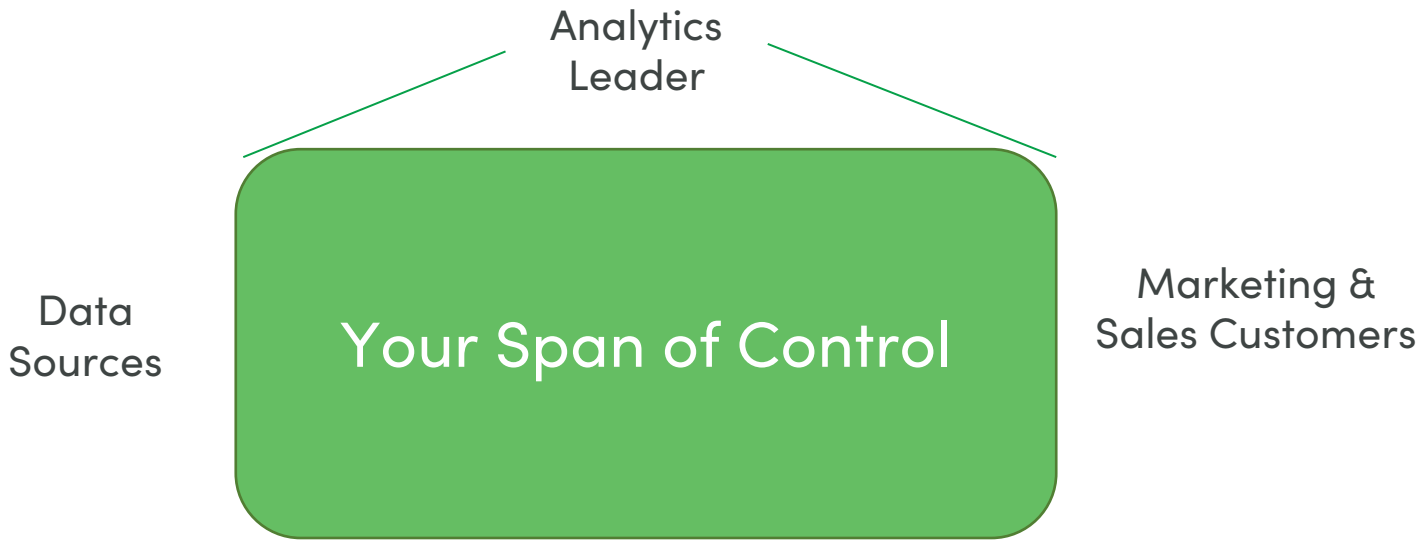
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As an analytics team leader, what does it take to be successful?

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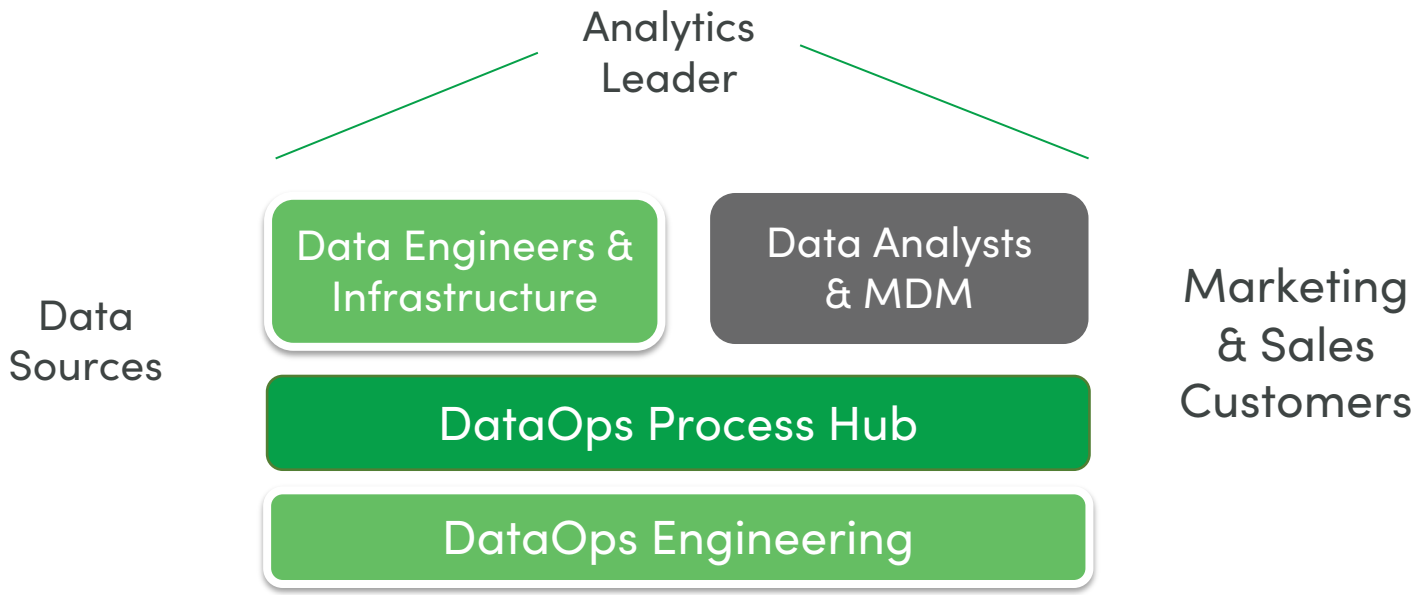
Second: Enjoy the Benefits of DataOps



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DataKitchen Capabilities (in Green)



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Finally: Superpower Mindset

Data Engineer

Data Analyst

Data Scientist

Pharma





Business Customers

Pharma

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DataOps Managed Service

Managed Service & Infrastructure	Professional Services	Product
• Deliverable: Agile data warehouse • Agile project management • Data engineering • Build, operate train & transfer	• Agile training • Product training • Implementation support • DataOps transformation	• Enables DataOps • Data pipeline & quality • Rapid feature deploy • Open platform, you own the work • Split team

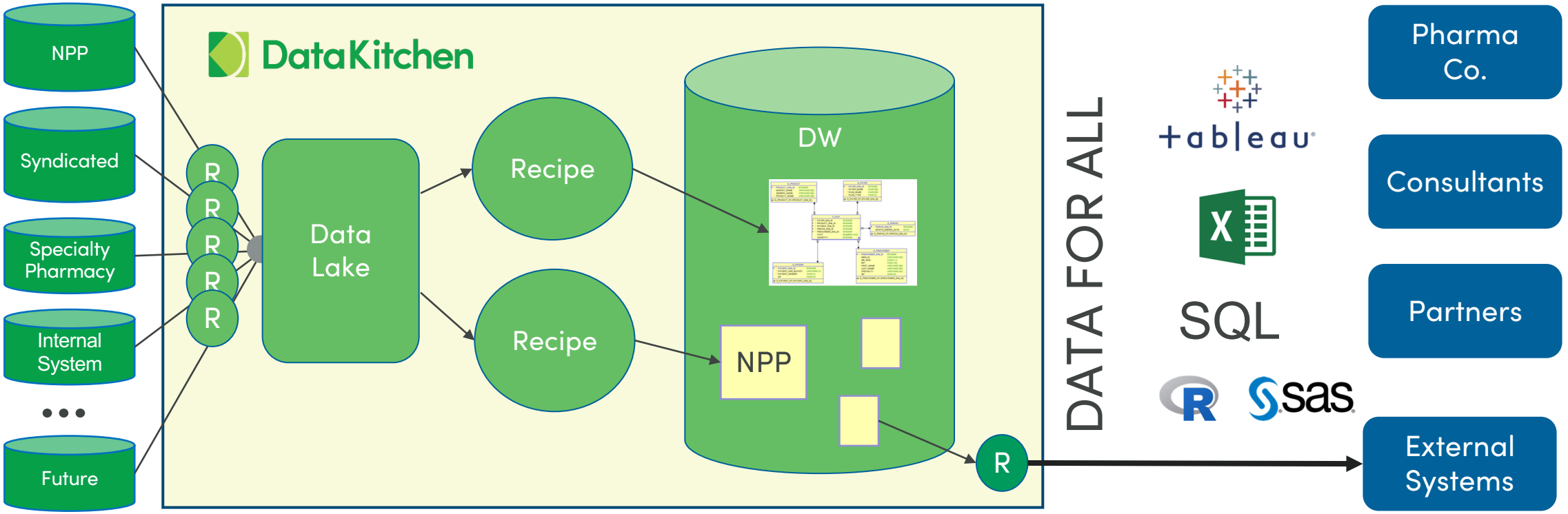


Not a 'little ZS', but a partner on your journey to DataOps

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DataOps Managed Services Architecture



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Working with a Cambridge, MA Biotech

Commercial Data Warehouse (CDW)

- DataKitchen Managed Services

Master Data Management (MDM)

- DataKitchen extracts HCOs & HCPs from shipments, interactions & syndicated data & sends data to Veeva Network
- DataKitchen uses Veeva Network outputs as one data source for DataKitchen Analytic Master
- Analytic Master integrates mastered & non-mastered HCOs & HCPs for single source of analytic truth

Data Stewardship

- Third party stewards for data in Veeva Network
- DataKitchen provides quality reports & tests on data sent to & received from Veeva Network:
  - Net new HCPs & HCOs
  - Mastered record consistency (e.g., alignment & sales credits)
  - Maintain candidates table for review of Veeva Network output

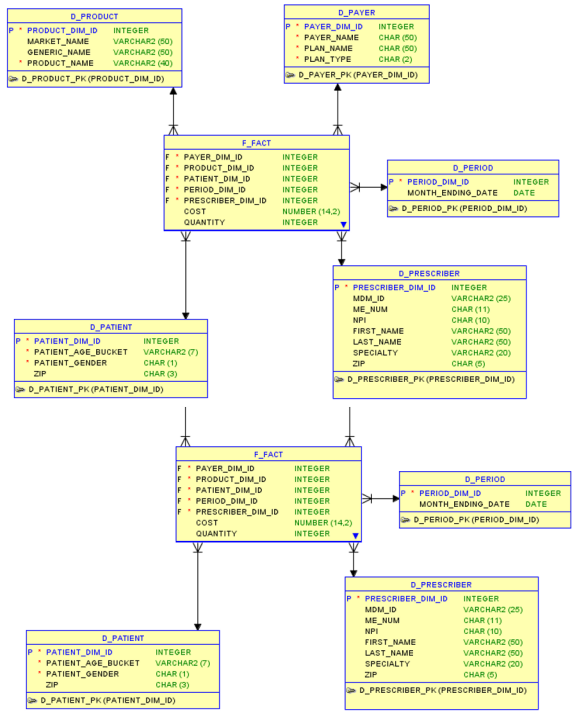
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Key Deliverable Types

Interlinked stars

- Dimensional modeling
- Multiple stars
- Multiple fact types & fact tables
- Shared dimensions
- Basis for self-serve analytics via Tableau & other BI tools



Normalized tables

- Simplified views
- Data Science inputs

Feeds for other systems & vendors

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Record Linking & Master Data Management

The Problem

Well integrated data is key to getting a full picture of the business

- Record linking all of your prescribers gives you the complete picture

Prescription & sales data can come from a lot of different sources:

- Syndicated data
- Specialty pharmacies
- Distributors

Prescriber information & other activity & come in a well:

- Calls & samples
- Speaker programs
- Non-personal promotion

A common identifier doesn't always exist

A single source of truth is needed for addresses, etc.

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Working with DataKitchen

Tickets, Knowledgebase & Time-Tracking

Jira

- We turn everything into a ticket *(i.e., projects, data features, bugs, new user requests, etc.)*
- If you send us an email with a request, we will turn it into the ticket
- DataKitchen typically manages this

Confluence

- Shared wiki pages
- Data schemas, automated tests & files
- DataKitchen sends the wiki & updates, but it's everyone's responsibility

Toggl

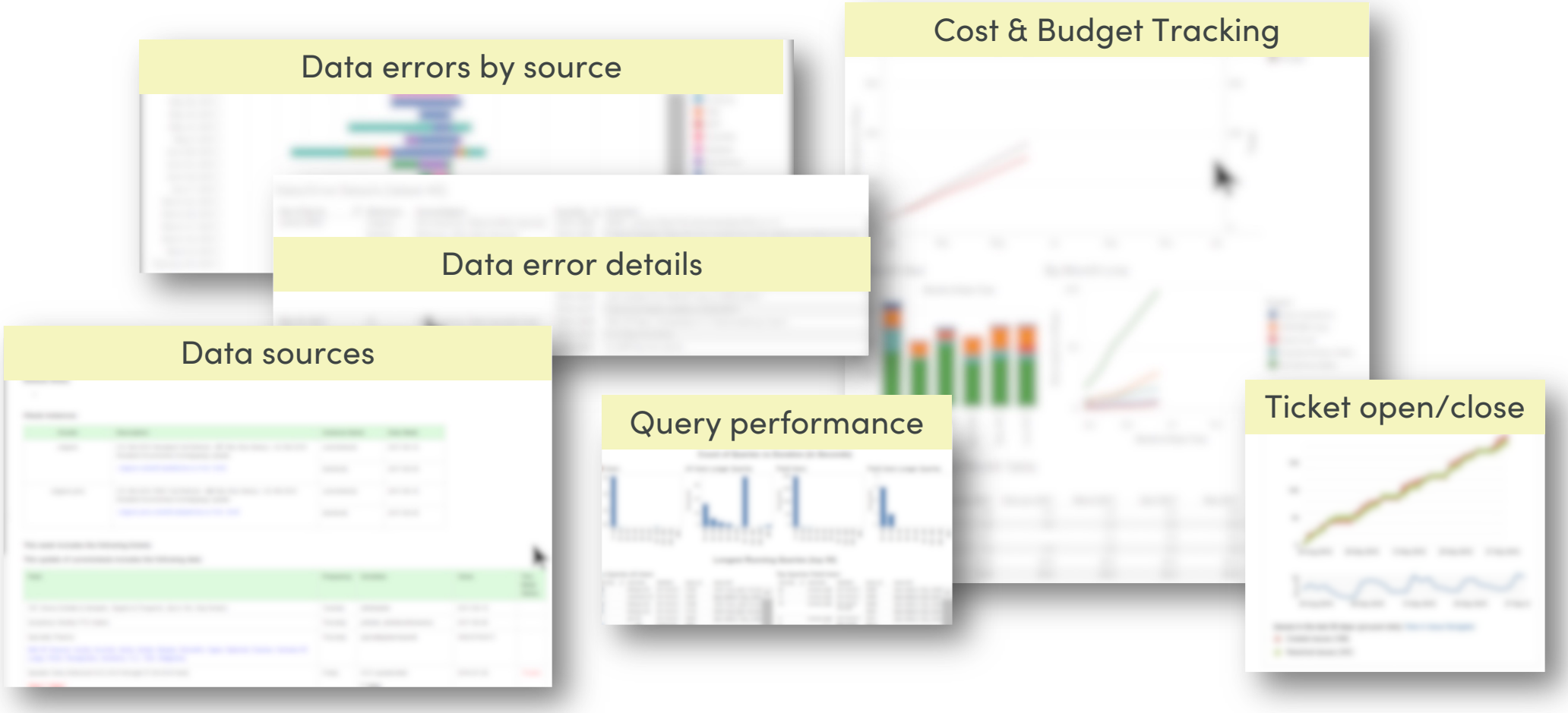
- DataKitchen tracks its time here
- Reports shared regularly

Processes to extract tickets, time-tracking data & load into your database for easy reporting & transparency

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Multiple Metrics, Dashboards & Emails



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DataKitchen Best Practice Accelerators

Packaged Commercial Pharma Data Expertise

How to get started quickly?
Don't start from scratch!

- Data connectors to typical data sources: Veeva, IQVIA, etc.
- Autogenerate data testing tool
- Best Practice Commercial Pharmaceutical Schema
- Typical dimensions tables:
  - Physician, Payer, Product, Time, Product, etc.
  - Interlinked fact tables
- Automatic schema documentation
- Templated DataOps 'Recipes'
- Standard process analytic reports
- Templated AWS DevOps & Security

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Main Idea:

DataKitchen's goal is to accelerate your Dataops journey with services, then allow you to take over when you wish

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Key Quotes



"From an organizational perspective, we were able to really measure the ROI by showing the organization dramatic cost savings, but also the organization felt that we were able to ***help them capitalize on opportunities better*** *because we were more efficient and could do things quicker."*



"DataKitchen helped us completely transform our operations."



"Let me just say ***with respect to DataOps – I'm a BELIEVER!****"*



-James Royster, Celgene, Head of Commercial Analytics;
Source: ***Customer Testimonial: DataKitchen's DataOps Platform***

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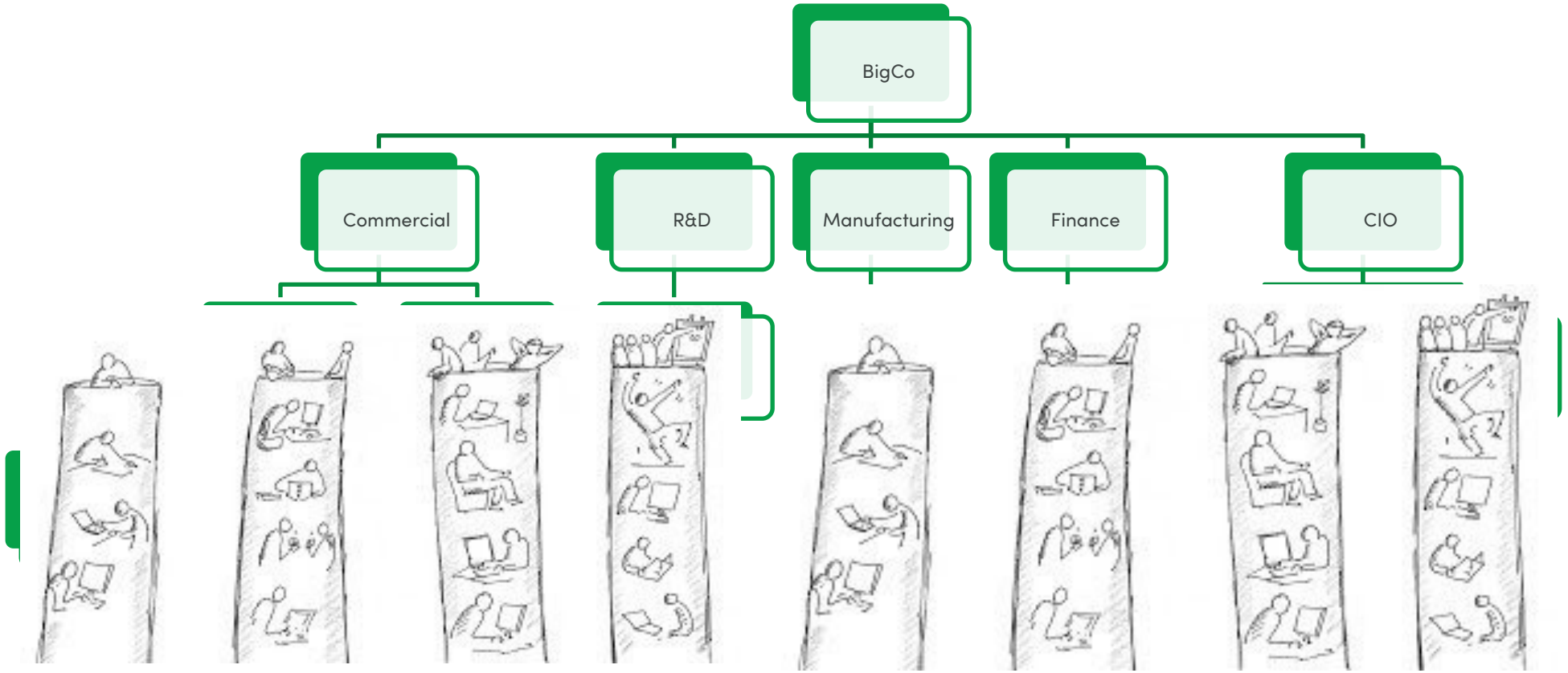
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Pharma Enterprise-Wide Transformation

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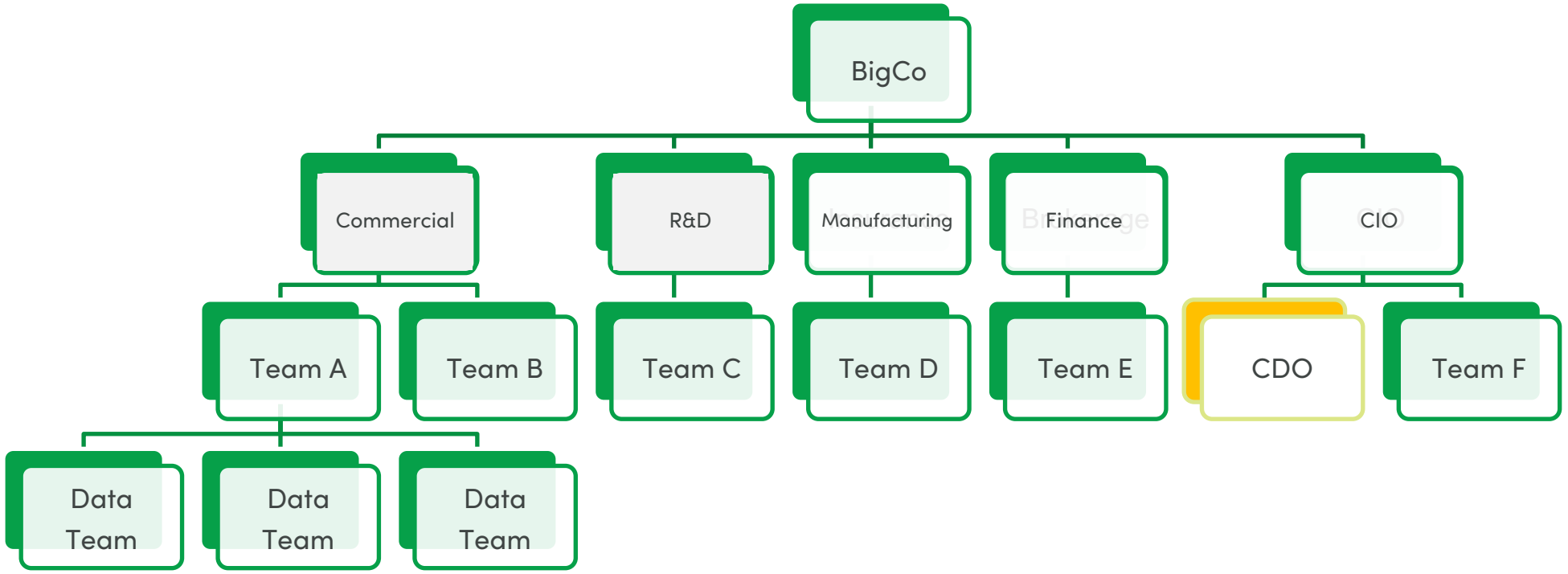
Enterprise Transformation: Data Teams Work in Silos



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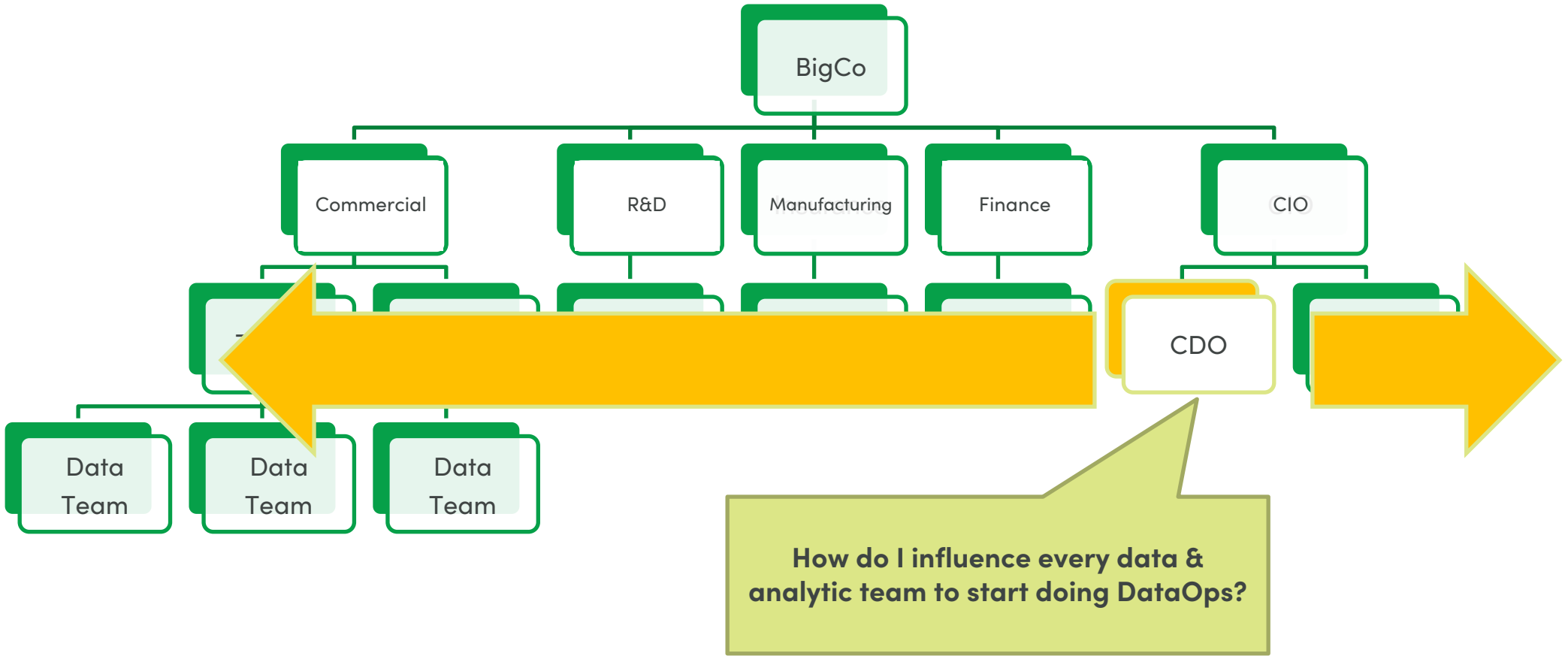
Enterprise Transformation: Complex Organizations



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Enterprise Transformation: Complex Horizontal Influence



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A Six-Step Process to Bring DataOps to Your Organization



Educate	Find	Establish	Demonstrate	Iterate	Expand
Educate on the ideas of DataOps	Find a first project to demonstrate value	Establish a community of interest in DataOps	Demonstrate real value in a short time	Iterate on more use cases with demonstrable value	Expand with teams, tools & metrics to drive lasting change
What: Best Practice presentations, video, books analyst writings & discussions	**What**: Discussions & 'therapy' with individual teams guided toward finding pain.	**What**: Create a resource center, community of interest; Align with data & agile leaders in an organization	**What**: Run small concept proving projects with specific DataOps tools & measure success in a short (month or two) projects	**What**: Expand to new team in projects, Continue to add value in continuing phases in first demonstration projects	**What:** Establish & staff full-time COE or Dojo. Set common enterprise technical infrastructure, tools measurements & metrics for the organization
Tools & Tasks: "Art of the Possible with DataOps" "DataOps Cookbook"	**Tools & Tasks**: In depth discussions, DataOps Maturity Model	**Tools & Tasks**: Establish web-based sharing sites: wiki, slack, emails	**Tools & Tasks**: Run pilots with DataKitchen DataOps software, others	**Tools and Tasks**: Iteratively deliver value, expand, pilot & find new customer	**Tools and Tasks:** Build Dojo/COE team, establish best practices, work with organization

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DataOps Transformation



Educate

Educate on the ideas of DataOps

What:
Best Practice presentations, video, books analyst writings & discussions

Tools & Tasks:
"Art of the Possible with DataOps"
"DataOps Cookbook"

Find

Find a first project to demonstrate value

What:
Discussions & 'therapy' with individual teams guided toward finding pain.

Tools & Tasks:
In depth discussions, DataOps Maturity Model

Establish

Establish a community of interest in DataOps

What:
Create a resource center, community of interest;
Align with data & agile leaders in an organization

Tools & Tasks:
Establish web-based sharing sites:
wiki, slack, emails

Key Questions:

- How do I help spread the word on DataOps?
- How to gain executives sponsorship for DataOps?
- How do we formulate a long-term corporate strategy for DataOps?
- How do we assess organizational readiness and provide a roadmap for implementation of DataOps?

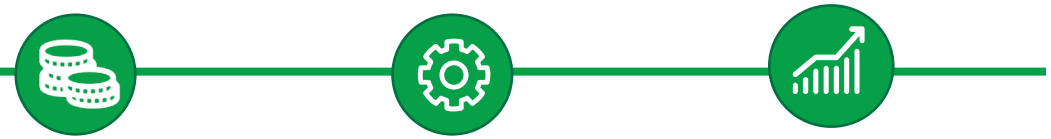
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DataOps Transformation

Key Questions:

- How do I find a first use case?
- What is the recommended structure for a COE/Dojo?
- How do I organize my teams to do DataOps?
- Do I need to staff DataOps Engineers?
- How do I measure success?



Demonstrate

Demonstrate real value in a short time

What:
Run small concept proving projects with specific DataOps tools & measure success in a short (month or two) projects

Tools & Tasks:
Run pilots with DataKitchen DataOps software, others

Iterate

Iterate on more use cases with demonstrable value

What:
Expand to new team in projects, Continue to add value in continuing phases in first demonstration projects

Tools and Tasks:
Iteratively deliver value, expand, pilot & find new customer

Expand

Expand with teams, tools and metrics to drive lasting change

What:
Establish and staff full-time COE or Dojo. Set common enterprise technical infrastructure, tools measurements & metrics for the organization

Tools and Tasks:
Build Dojo/COE team, establish best practices, work with organization

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Main Idea:

DataOps transformation is a journey of people, process & technology

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Key Quotes

*"Success is ensuring that we've got analytics being **built consistently across 90 product teams** in support of their particular analytical needs & it's done in a consistent way."*

*"What's new to us is the is the really the focus on the DataOps platform to bring all that together & **really drive scale**, so we can deploy pipeline technologies out to large numbers of people & control the sprawl of our data technology more effectively. We're really leveraging the methods & the technologies that we've been building, to really encompass that into a platform that we can scale on more broadly."*

"The quality checks, the automation, the reusability, repeatability & containerization wrapped into it."

-Chuck Smith, VP of R&D Data Strategy, GlaxoSmithKline (GSK);
Source: DataOps Transformation Trailblazers: The Journey to DataOps Success

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Conclusion

"Analytics agility leads to business agility. When the data team delivers analytics rapidly & accurately, analytics do a better job supporting decision-makers."

-James Royster, Celgene

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DataOps Is the New Normal in Pharma

Successful pharma companies are doing DataOps.
To be competitive, you must as well.

- The pharma companies that win in an increasingly competitive marketplace will be those that successfully manage one of their most valuable assets - their data.
- Companies are using DataOps to streamline efficiencies across the entire data organization – from research to commercialization – enabling them to deliver the high-quality, on-demand insight that consistently leads to successful business decisions.

Key Benefits

- Eliminate errors & build trust in the quality of your data.
- Dramatically reduce analytic cycle time. Analytics agility equals business agility.
- Collaborate across teams.
- Bring critical capabilities back in house by increasing internal team productivity.

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